
RUSH UNIVERSITY

BULLETIN 1987-88



Sesquicentennial
1837-1987



RUSH-PRESBYTERIAN-ST. LUKE'S MEDICAL CENTER

Academic Calendar 1987-88

	X Courses	Y Courses	Z Courses
Orientation and Registration	September 10-11	September 10-11	
Fall Quarter Classes Begin	September 14	September 14	September 8
Classes End	November 20		
Examination Period	November 23-25		
Thanksgiving Holiday	November 26-27	November 26-27	November 26-27
Classes End		December 11	December 11
Examination Period		December 14-18	December 14-18
Winter Quarter Classes Begin	January 4	January 4	January 4
Classes End	March 11	March 11	March 11
Examination Period	March 14-18	March 14-18	March 14-18
Spring Quarter Classes Begin	March 28	March 28	March 28
Memorial Day Observed	May 30	May 30	May 30
Classes End	June 3	June 17	May 13
Examination Period	June 6-10	June 20-24	May 16-20
Commencement	June 11		
Summer Quarter Classes Begin	June 20		
Independence Day Observed	July 4		
Classes End	August 23		
Examination Period	August 24-26		

Academic Calendar 1988-89

	X Courses	Y Courses	Z Courses
Orientation and Registration	September 8-9	September 8-9	
Fall Quarter Classes Begin	September 12	September 12	September 6
Classes End	November 18		
Examination Period	November 21-23		
Thanksgiving Holiday	November 24-25	November 24-25	November 24-25
Classes End		December 9	December 9
Examination Period		December 12-16	December 12-16
Winter Quarter Classes Begin	January 3	January 3	January 3
Classes End	March 10	March 10	March 10
Examination Period	March 13-17	March 13-17	March 13-17
Spring Quarter Classes Begin	March 27	March 27	March 27
Memorial Day Observed	May 29	May 29	May 29
Classes End	June 2	June 16	May 12
Examination Period	June 5-9	June 19-23	May 15-19
Commencement	June 10		
Summer Quarter Classes Begin	June 19		
Independence Day Observed	July 4		
Classes End	August 22		
Examination Period	August 23-25		

X courses are offered by nursing and health sciences faculties
Y courses are offered by first-year medicine and graduate college faculties
Z courses are offered by the second-year medicine faculty

RUSH UNIVERSITY BULLETIN

1987-88

Rush-Presbyterian-St. Luke's Medical Center, Chicago

This Bulletin is published for the faculty and students of Rush University. The University reserves the right to make changes in any or all specifications contained herein and to apply such revisions to registered and accepted students.

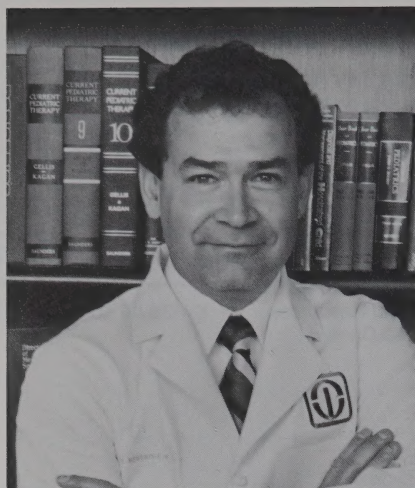
Rush University
600 S. Paulina Street
Chicago, Illinois 60612

Rush University
Degrees in the Health Professions
1987-88

Rush Medical College	Doctor of Medicine
College of Nursing	Bachelor of Science Master of Science Practitioner Programs Anesthesia Community Health Gerontology Neonatal Pediatric Clinical Specialist Programs Gerontology Home Health Care Medical/Surgical Oncology Parent/Child Health Psychiatry/Mental Health Rehabilitation Doctor of Nursing Science
College of Health Sciences	Bachelor of Science Medical Technology Master of Science Audiology Clinical Nutrition Health Systems Management Medical Physics Occupational Therapy Speech-Language Pathology
The Graduate College	Master of Science Anatomical Sciences Pharmacology Radiological Sciences Doctor of Philosophy Anatomical Sciences Biochemistry Immunology Medical Physics Pharmacology Physiology Psychology

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*Leo M. Henikoff, M.D., President
Rush-Presbyterian-St. Luke's Medical Center*

"Rush-Presbyterian-St. Luke's is a major academic medical center on the national scene in a leadership position in many of its attributes and delivering the kind of care that is really second to none. It is within this environment of excellence and balanced emphasis on patient care, education, and scientific inquiry that future health professionals have the opportunity to grow in knowledge, understanding and skill."



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Medical Center Mission

The primary mission of Rush-Presbyterian-St. Luke's Medical Center (RPSLMC) is to improve the health status of a defined population through the development and operation of a voluntary health care system. This system is a multifaceted corporation that provides a full range of health care services, alternative financing arrangements, and organizational elements that are integrated through a single governance structure and through contractual relationships with other health care and educational institutions. High quality, compassionate, comprehensive health care services will be provided to a representative regional population and selected specialty services to a national population. New knowledge will be fostered and disseminated, and a broad spectrum of health manpower will be educated and trained through the system's academic component, Rush University. The full integration of the academic function with the health care function will reinforce the positive aspects of one on the other. The faculty and staff of Rush-Presbyterian-St. Luke's Medical Center will strive to achieve national and international leadership in setting standards of excellence in patient care, education, research and management. Rush-Presbyterian-St. Luke's Medical Center will maintain financial strength, effectively and efficiently manage resources, and be adaptive to the changing environment.

The Medical Center

Rush-Presbyterian-St. Luke's Medical Center is one of Chicago's oldest health care organizations. Its heritage extends back to 1837 when Rush Medical College was established. St. Luke's Hospital was founded in 1864 and Presbyterian Hospital in 1883. The merger of these pioneer institutions in 1969 created the present day Rush-Presbyterian-St. Luke's Medical Center, which includes:

- Rush University, a health professions higher education institution that enrolled 1,149 students in 1986-87.
 - Presbyterian-St. Luke's Hospital, which currently operates 903 beds, a major referral center that provides primary care to its immediate community and secondary and tertiary care to patients from across the country. The hospital admitted 3 more than 28,000 patients and performed over 17,000 operations the last fiscal year.
 - The Johnston R. Bowman Health Center for the Elderly, a short-term rehabilitation facility with 176 beds and a national model for hospital-based geriatric care. The center admitted 1,673 patients.
 - Sheridan Road Hospital, which currently operates 186 beds, a community hospital serving the north side of Chicago. In 1985, a total of 2,167 patients were admitted to the hospital.
- The Medical Center is the hub of a network of 17 hospitals and health care agencies in the Chicago area and in Indiana, and of an educational network of 16 colleges and universities in six states. (See Rush University Affiliations.) Through its own programs and in conjunction with its affiliated institutions, the Medical Center is the central initiating component of a comprehensive cooperative health organization. This network includes:

Associated Institutions

Christ Hospital and Medical Center, Oak Lawn, Illinois; 873 beds
Mount Sinai Hospital Medical Center, Chicago, Illinois; 464 beds
Schwab Rehabilitation Center, Chicago, Illinois; 67 beds

Affiliated Institutions

Bethany Hospital, Chicago, Illinois; 212 beds
Central DuPage Hospital, Winfield, Illinois; 371 beds
Copley Memorial Hospital, Inc., Aurora, Illinois; 319 beds
Elmhurst Memorial Hospital, Elmhurst, Illinois; 455 beds
Galesburg Cottage Hospital, Galesburg, Illinois; 265 beds
Grant Hospital of Chicago, Chicago, Illinois; 508 beds
LaGrange Memorial Hospital, LaGrange, Illinois; 276 beds
LaPorte Hospital, LaPorte, Indiana; 227 beds
MacNeal Hospital, Berwyn, Illinois; 427 beds
Marianjoy Rehabilitation Center, Wheaton, Illinois; 91 beds
St. Mary's Hospital, Streator, Illinois; 248 beds
Rush North Shore Medical Center, Skokie, Illinois; 262 beds
Swedish Covenant Hospital, Chicago, Illinois; 355 beds
West Suburban Hospital Medical Center, Oak Park, Illinois; 374 beds
Mile Square Health Center, Inc., Chicago, Illinois; over 56,000 registered outpatients

The University

Rush University is the academic component of Rush-Presbyterian-St. Luke's Medical Center. Founded in 1972, the University has expanded from one college and fewer than 100 students to four colleges and almost 1,200 students. It includes Rush Medical College, the College of Nursing, the College of Health Sciences, and The Graduate College.

Rush Medical College, chartered in 1837, opened officially on December 4, 1843, with 22 students enrolled in a 16-week course. During the first century of operation more than 10,000 physicians received their training at Rush. Rush Medical College was affiliated with The University of Chicago from 1898 until 1942, when the medical college temporarily suspended its educational program though it continued its corporate existence. Its faculty continued undergraduate and graduate teaching of medicine and the biological sciences as members of the faculty of the University of Illinois. The charter of the medical college was reactivated in 1969 when it became part of the Medical Center, and, in 1971, it reopened with a class of 66 first-year students and 33 third-year students. First-year class size reached its projected maximum of 120 in 1976.

The College of Nursing represents a combined heritage dating back to the late nineteenth century when its first antecedent, the St. Luke's Hospital Training School of Nursing, opened in 1885 to offer diploma education to nurses. In 1903 the Presbyterian Hospital School of Nursing accepted its first students and from 1956 to 1968 nurses were taught at the merged Presbyterian-St. Luke's Hospital School of Nursing. Before the establishment of the College of Nursing in 1972, more than 7,000 nurses had graduated from these three schools. Currently, approximately 200 baccalaureate, master's and doctoral nursing students graduate each year.

The College of Health Sciences, established in 1975, traces its origins to the School of Medical Technology sponsored by Presbyterian-St. Luke's Hospital from 1959 to 1972. This school was the second largest of its kind in the city of Chicago. During its operation, it provided a one-year professional internship program to more than 200 baccalaureate students in medical technology. Today, the College of Health Sciences offers six programs at the master's level in addition to the bachelor's program in medical technology.

The Graduate College was established as a separate academic unit in January, 1981 having previously been organized as the Graduate

School within the College of Health Sciences. The Graduate College has master's degree programs in three areas and seven doctoral programs.

Student Characteristics. In 1986 students ranged in age from 19 to 53, with undergraduates averaging 24 years; graduates, 29 years; and professional students, 25 years. Over 80 percent of the students lived in Illinois prior to entering Rush. Of the 1,149 students, 163 are members of minority groups.

Fall 1986 Enrollment	Men	Women	Total
Rush Medical College	305	185	490
College of Nursing	29	368	397
College of Health Sciences	19	95	114
The Graduate College	42	24	66
Unclassified	11	71	782
TOTAL	406	743	1149

The Philosophy

The University was established in response to demands for a more effective and humane health care system that could supersede highly specialized, fragmented and often geographically inaccessible patient care services. The Rush System for Health, the conceptual framework adopted to address these problems, offers a prototype that could become a model for the delivery of health care in this country.

This system is unique in many ways. A central concept is that the academic and care elements of health delivery systems must be united. The implementation of this concept differentiates Rush from many typical health universities. First, at the foundation of the University is an outstanding patient care setting. Presbyterian-St. Luke's Hospital is recognized as one of the top 20 hospitals in the country; its existence as a high quality patient care institution made the development of the University feasible. Most faculty and students have clinical responsibilities in this setting or in one of the institutions linked to Rush-Presbyterian-St. Luke's Medical Center. Therefore, faculty function both as clinicians and as teachers. This combination

ensures that faculty members bring up-to-date knowledge to the clinical setting while transmitting professional expertise in the classroom.

Another distinctive feature of Rush University is its commitment to health maintenance and illness prevention. Traditional approaches to health care delivery are based on giving care to the seriously ill. Today, only about 12 percent of the population requires such care. At Rush the focus in the classroom is on pathology and prevention of disease. This is supplemented by clinical experiences with inpatients and outpatients.

Programs of Study

Rush University confers the bachelor of science (B.S.), master of science (M.S.), doctor of nursing science (D.N.Sc.), doctor of medicine (M.D.) and doctor of philosophy (Ph.D.) degrees. Within the undergraduate nursing program, an R.N. completion option meets the needs of registered nurses for a university education. Both baccalaureate programs (nursing and medical technology) begin in the junior year of study after completion of two years of course work at other accredited colleges or universities.

Master of science programs are offered by the College of Nursing, College of Health Sciences, and The Graduate College. The College of Nursing has concentrations in anesthesia, community health, gerontology, home health care, medical/surgical, neonatal, oncology, pediatric, parent/child health, and psychiatry/mental health. In the College of Health Sciences, a student may major in audiology, clinical nutrition, health systems management, medical physics, occupational therapy, and speech-language pathology. Master's degree programs in anatomical sciences, radiological sciences, and pharmacology are offered by The Graduate College.

Doctoral programs include the doctor of nursing science, doctor of medicine and the doctor of philosophy. Students in The Graduate College may concentrate in anatomical sciences, biochemistry, immunology, medical physics, pharmacology, physiology, and psychology. A number of students enroll in concurrent M.D./Ph.D. programs.

Equal Opportunity Policy

Rush University encourages and gives full consideration to all applicants for admission and financial aid regardless of race, sex, religion, color, national origin, age, or handicap. The

University is committed to attracting candidates who will help to make the population of health care professionals more representative of the national population. The equal opportunity coordinator for academic affairs has been designated to implement these policies. The equal opportunity coordinator may be contacted by telephone at (312) 942-7093 or by mail (room 764-A, Academic Facility).

Policy on Harassment

Rush-Presbyterian-St. Luke's Medical Center has adopted policies and procedures on harassment for the University and nonacademic sectors of the institution. These policies and procedures are intended to emphasize the Medical Center's longstanding commitment to preventing harassment and to focus on the internal resolution of any complaints.

Under these policies and procedures the more familiar category of sexual harassment as well as harassment related to race, color, religion, national origin, ancestry, age, marital status, physical or mental handicap, and unfavorable discharge from military service are prohibited. The provisions include protections for and prohibit retaliation against an individual making a complaint or supplying information about a complaint; they also incorporate protections for a person who considers himself or herself falsely accused. Inquiries or complaints of harassment from students, residents or faculty members will be handled in a strictly confidential manner through the Office of the Equal Opportunity Coordinator for Academic Affairs or the director of the Student Counseling Center. Every effort will be made to resolve a complaint informally, but procedures have been established for a formal hearing if that is necessary or preferred.

Copies of the Policies and Procedures on Harassment are available from the Office of the Equal Opportunity Coordinator for Academic Affairs (room 764-A, Academic Facility). If you have any questions regarding the matter of harassment, please get in touch with either the equal opportunity coordinator for academic affairs at (312) 942-7093 or the director of the Student Counseling Center at (312) 942-3687.

Research

Research expenditures totaled more than \$12 million last year. The faculty of the University encourages investigation of both the normal and disease processes and the distribution of the delivery of health care services. The faculty believes that inquiry into these areas by students should be encouraged if they are to become



practicing professionals who will continue to learn throughout their careers. All research studies conducted at Rush-Presbyterian-St. Luke's Medical Center are listed in a research report published annually by the Office of Research Administration.

Accreditation

- Rush University is accredited by the Commission on Institutions of Higher Education of the North Central Association of Colleges and Schools, the regional accrediting association.
- Rush Medical College is accredited by the Liaison Committee on Medical Education of the American Medical Association and the Association of American Medical Colleges.
- Graduate medical education is accredited by the Accreditation Council on Graduate Medical Education.

- The College of Nursing is accredited by the National League for Nursing.
- The anesthesia nursing program is accredited by the Council on Accreditation of Educational Programs for Nurse Anesthesia.
- The clinical pastoral education (CPE) program is accredited by the Association for Clinical Pastoral Education.
- The health systems management program is accredited by the Accrediting Commission of Education for Health Services Administration.
- The medical technology program is accredited by the National Accrediting Agency for Clinical Laboratory Sciences for the American Medical Association's Committee on Allied Health Education and Accreditation.
- The occupational therapy program is accredited by the American Occupational Therapy Association for the American Medical Association's Committee on Allied Health Education and Accreditation.

Authorization

- The State of Illinois Board of Higher Education has authorized all degree programs offered through Rush University.

Licenses

- Department of Public Health, State of Illinois
- Cook County Board of Health

Memberships

- American Hospital Association
- Illinois Hospital Association
- Chicago Hospital Council
- American Association of Colleges of Nursing
- Blue Cross/Blue Shield Health Care Service Corporation
- Association of American Medical Colleges
- North Central Association
- Federation of Independent Illinois Colleges and Universities
- American Society of Allied Health Professions
- National League for Nursing

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Academic Computing Resources

Rush University is a leader in using computers in health care education, and it continues to improve and increase its computer options. By spring 1986, Rush University students, faculty, and staff were spending over 2,000 hours a month on academic computing resources' (ACR) 24 PLATO terminals and personal computer dial-ups. Since 1981, over 800 faculty and staff and 2,000 students have received personal introductions to computer-based instruction on PLATO and to over 850 programs in health sciences. They have also explored business and educational microcomputer applications on ACR's IBM PCs. Use of the microcomputers has grown to over 400 hours per month. Rush runs a project that will allow an IBM PC to emulate PLATO.

The computer classroom serves as a computer literacy center. Magazines, books, product announcements, on-line tutorials, and access to traditional and electronic bulletin boards are available.

PLATO terminals access a printer for copies of electronic notes, the results of statistical analyses and screen copies.

The faculty has been actively involved in the development and use of computer material. In cooperation with ACR, faculty members have developed a library of 60 programs (over 80 hours of computer-based instruction) and ten large banks of computerized self-assessment test items. An electronic logbook for clinical tracking and tailored testing has been implemented in the internal medicine clerkship program. The tracking system is expected to strengthen the management and operation of clerkship and residency programs.

A summer development program provides opportunities for students and faculty to become involved with instructional computing. Academic computing hires students, teaches them to program and matches them with faculty who are interested in using computers in their courses. Instructional design and programming support are available to the projects. Students have an opportunity to learn about computing, work closely with faculty, and review curricular material.

Students enjoy "Rushtalk," a student-only PLATO notefile in which issues are discussed, tales are spun, and future events are announced. Microcomputers, printers, and a library of software are available for student use for word processing, data analysis, or special projects. All students have access to electronic games on PLATO during the late night hours.

Academic Skills Center

The Academic Skills Center staff offers individual counseling and workshops to students who wish to improve their study and learning skills. The staff helps students improve their time management, textbook reading, note taking, test taking, writing of term papers and dissertations, and related skills. Students for whom English is a second language may gain assistance with quantitative skills, reading, and writing.

The center works closely with the other academic resources of the University and serves as a contact point, referring students to other support services, including content area tutors.

Student contacts with the center are confidential and no information will be released to another person or office without the prior written consent of the student.

Individual consultation is available Monday through Friday between 9:00 a.m. and 4:00 p.m., on a walk-in basis, by faculty referral or by appointment. Group sessions will be arranged when necessary. Center staff will offer workshops on selected study skills periodically throughout the year. These workshops will be advertised through varied campus media.

All services of the Academic Skills Center are provided at no cost to the student.

Alumni Relations

The Office of Alumni Relations is located in the 1700 W. Van Buren Building. It has been established to provide a planned, coordinated program of service and activities of mutual interest and benefit to Rush University, the Medical Center, and all alumni.

Although Rush University, founded in 1972, is a relatively young institution, it has already conferred more than 4,000 degrees in the health professions since its inception, and this dynamic growth continues.

The objectives of the alumni relations office are: to provide channels for alumni of Rush Medical College, the College of Nursing, the College of Health Sciences, The Graduate College, and the House Staff to remain informed of current developments at the Medical Center; develop an active interest in and involvement with their alma mater; maintain contact with fellow alumni and faculty; take advantage of continuing education opportunities offered through Rush University; respond positively through both financial and philosophical support and promote and perpetuate the high standards of excellence in patient care, education and scientific advancement consistent with the

objectives of Rush-Presbyterian-St. Luke's Medical Center.

Formally organized alumni associations exist for graduates of Rush Medical College, the College of Nursing, and the Department of Health Systems Management. As the numbers of alumni increase from the other programs, organizational efforts are being undertaken for them as well. For more information concerning membership in one of the existing alumni associations or services available through the alumni relations office, call (312) 942-7165.

Alumni Associations

Rush Medical College. The Alumni Association of Rush Medical College is an active organization dedicated to supporting the educational goals of the college. Purposes of the organization are to maintain communications between alumni and the college; to honor alumni who have given distinguished service to the profession of medicine and/or to their alma mater; to promote and encourage the highest standards of medical education; to assist the faculty and staff of the college in any way possible and to provide financial support for the operation of Rush Medical College.

Prior to its reactivation in 1969, Rush Medical College conferred 10,976 doctor of medicine degrees. Alumni and Trustees of the Medical Center were responsible for keeping active the original charter granted to the college by the State of Illinois in 1837. The alumni also maintained the Rush Medical College Library and made financial grants for postgraduate education during the college's inactive period. Rush alumni practice in all 50 states and in 11 foreign countries. Since the reactivation of Rush Medical College in 1969, Rush University has conferred over 1,400 doctor of medicine degrees.

The Alumni Association is represented on the Board of Trustees of Rush-Presbyterian-St. Luke's Medical Center by two alumni who are elected annually, the president and immediate past-president of the Alumni Association.

College of Nursing. The Rush-Presbyterian-St. Luke's Nurses Alumni Association is an active organization with the following goals: to unite the graduates of Rush University College of Nursing, Presbyterian-St. Luke's Hospital School of Nursing, Presbyterian Hospital School of Nursing, and St. Luke's Hospital School of Nursing for mutual assistance, protection and preservation of fellowship; to promote the professional and educational

advancement of nursing and to support the interests of Rush University programs in nursing.

All graduates of these schools of nursing are considered active members of the Alumni Association. Each year, graduates return at Homecoming to tour the facilities and to learn what is happening at the Medical Center. From 1887 through 1968 there were 7,221 graduates of the diploma programs of the various schools. Many of them have served with distinction around the world. Since the founding of the College of Nursing in 1972, Rush University has conferred over 2,000 nursing degrees.

Many alumni support the Rush University nursing programs financially through the Golden Lamp Society, which provides leadership gifts to the college.

The association also gives an annual award to the outstanding graduate of the College of Nursing.

College of Health Sciences. The Alumni Association of the Department of Health Systems Management program is dedicated to the following goals: to advance knowledge and techniques in the field of health systems management; to maintain interest in potential and enrolled students; to facilitate graduate participation in continuing education activities; to provide objective recommendations for the development of the program; to provide opportunities for graduates to share their work experiences with students and other alumni and to serve as a network for job search and career advancement.

The first class of ten students graduated in June, 1981. Since that time the Alumni Association has grown to 74 members. An annual meeting and reception is held in conjunction with the Health Systems Management National Invitational Symposium on Hospital and Health Affairs.

Rush Surgical Society. This society recognizes the many surgeons who have been trained at the Medical Center but who may not have been graduates of Rush Medical College. Members automatically include all past, present and future trainees and faculty who have participated in a surgical laboratory, surgical clinical program or both.

The society's purpose is to support the Medical Center by promoting educational, scientific, and social aspects relating to surgery.

Medical Society. An equivalent group was established in medicine called the Rush Internal Medicine Alumni Association. This society was officially launched April 1987. The society's purpose is to facilitate contact and

communication among former internal medicine house officers and to honor alumni who have given distinguished service to the profession of medicine.

Biomedical Communications

The Department of Biomedical Communications provides media production and technical services for patient care, education, and research. Offices are located on the fourth floor of the Academic Facility with the exception of the Communications Skills Center, which is on the fifth floor.

The department includes five sections. Program Production works with faculty, administration, and Medical Center staff to identify, design, and produce programs and presentations that effectively communicate ideas, concepts, and data. Services include production in audio, video, and multimedia formats. Courses are offered for students in the instructional design process and in the production of media presentations.

Medical Photography produces photographic prints, slides, transparencies, photomicrographs, and motion pictures. The staff of scientific photographers offers a variety of services from the creation of visuals for classroom use to visuals that appear in national and international publications and conferences.

Medical Illustration and Design creates visual material to facilitate communication in whatever medium is best suited for the subject. This ranges from realistic drawings for possible use in surgery or anatomy courses to visual clarification of an abstract idea. Additionally, the section is available to render chart and graph material, design graphic art, and produce exhibits.

Media Services provides a wide variety of services relating to instructional technology. The Communications Skills Center is a teaching facility that provides a unique environment for the practice and observation of communications skills in which faculty and students conduct interviews and research projects and practice communications techniques. Training and assistance are available throughout the Medical Center in the utilization of audiovisual equipment and instructional materials for the classroom, meetings, and individual instruction. The Rush Television Network provides free television channels, enabling inpatients to receive general information, health education programs, instructions for personal health care, chapel services, and entertainment. Additional television channels provide faculty, students and staff with support for continuing professional education, inservice training, and classroom activities.

Electronic Engineering operates, maintains, and repairs electronic equipment and designs the technical aspects of media systems for Medical Center use.

Campus

The Medical Center now consists of 22 buildings on the 35-acre main campus and Sheridan Road Hospital on the north side of Chicago. The main campus includes patient care, education, and research facilities. Many of the buildings are connected by bridges or tunnels that permit inside travel to most facilities. Classrooms are located in the Academic Facility and Schweppe-Sprague Hall. Various other buildings have conference and seminar rooms. Specialized research laboratories are located primarily in Jelke as well as in Rawson, the Academic Facility and Schweppe-Sprague Hall. In 1986, construction was completed on a new office building located north of the Eisenhower Expressway on Paulina Street.

Student life is centered in the Academic Facility and Schweppe-Sprague Hall. A few student dorm rooms are in Schweppe-Sprague Hall. The first floor of Schweppe-Sprague Hall houses the associate dean for student services, college admissions services and affiliated college programs, registrar, student financial affairs, financial aid, and a large auditorium where most large-group, cocurricular events for students are held. The Office of Student Affairs and a student lounge are located on the lower level.

The Rush University Bookstore is on the first floor of the Academic Facility and the Medical Center cafeteria is on the second.

The Office of Student Affairs distributes a campus map to new students and publishes a student handbook annually. The handbook includes a yellow pages section that provides locations and telephone numbers of people, offices, departments and buildings of interest to students.

Continuing Education

The University Office of Continuing Education supports the sponsorship of medical, nursing, and health professions symposia, workshops, and conferences for practicing professionals. Students may register at reduced rates for some Rush-sponsored programs.

The staff provides services to faculty and staff of the University and Medical Center that include consultation in planning meetings, budget preparation and marketing, including strategy and brochure development, printing, and advertising. A computerized registration system

maintains attendee records, confirmation letters, and attendance lists. For each meeting, the office prepares name tags and certificates of completion.

All programs are supervised by an experienced meeting planner who directs the marketing activities, orders all supplies and audiovisual equipment, and is on site during the program to assure its smooth operation. After the program concludes, the meeting planner prepares a program evaluation, a complete financial report, and detailed marketing and registration summaries.

Information regarding services and future programs can be obtained by calling (312) 942-7119.

Counseling Services

Open all year, the Student Counseling Center provides professional counseling, at no charge to students, for a variety of concerns ranging from academic problems to issues of personal development. Students have sought help for test anxiety, insomnia, study difficulties, career questions, eating disorders, parenting concerns, general anxiety, depression, and marital and/or relationship problems. In addition to counseling of individuals and couples, the center offers group and workshop experiences. Recently the center offered ongoing support groups for male nursing students, first-year medical students and students with compulsive eating problems; in addition, workshops on assertiveness training for medical school clerkships have been offered.

Another important service of the center is its peer counseling program. Peer counselors are students who are available to talk to any student in person, by telephone or via the PLATO computer system. Students volunteer to receive training in basic counseling skills at the beginning of each academic year. This peer counseling group, which comprises about 50 students from all colleges, meets regularly throughout the year for educational and social purposes.

The Student Counseling Center maintains strict standards of privacy and confidentiality. No information on an individual student is released to anyone, inside or outside of the University, without the prior consent of the student. No student contact with the counseling center becomes a part of any other University record.

The office is located on the eighth floor of Schweppe-Sprague Hall.

Curriculum Development and Evaluation

The Office of Curriculum Development and Evaluation offers University courses in measurement, evaluation, and curriculum design. Office staff consults and lectures in areas related to curriculum planning and educational evaluation. Students, faculty, and staff are invited to contact the office for advice on design and execution of research studies or for assistance in one of the following areas:

- curriculum and instructional development, which includes activities such as refinement of objectives and syllabi, development of instructional strategies, and description of the instructional domain
- evaluative study of educational programs, which includes participant/observer course evaluation, test development, computerized test item generation, comparison of instructional strategies, and faculty development
- research planning and implementation, which includes research design, questionnaire development, survey design, design of sampling plans, instrument validation, statistical analysis, and interpretation of results

Office staff consults in the development of proposals for education, research and training grants, and it either consults or collaborates in grant-funded studies. Occasionally, staff members conduct research in health care education with professionals outside of Rush University.

General Educational Resources

The Office of General Educational Resources (GER) is responsible for providing students, faculty, and staff with a wide range of services necessary for carrying out both laboratory and classroom instruction. GER's management of the spacious, flexible facilities located on the seventh floor of the Academic Facility enables it to meet multiple needs for educational space, equipment and other support. In addition, GER manages the flexible classrooms located at the south end of the seventh floor and also operates the Quick Copy Center. The multidisciplinary laboratory complex consists of ten laboratory/classrooms and a central core demonstration area. Within the area are the electron microscope facilities and a small

darkroom for scientific use by faculty and students. GER staff offers cardiopulmonary resuscitation and basic life-support training for individuals and groups. The office is responsible for providing microscopes and other scientific equipment for educational uses, including the microscope rental plan (see below).

The Quick Copy Center, located on the seventh floor of the Academic Facility, duplicates materials for educational purposes as well as general needs. A full range of services, including front and back copying, electronic page formatting with graphics and typesetting, and multiple binding options are offered through the center. Special rates are available for student cooperatives and organizations. Personal work of over ten copies can be accommodated for faculty and students for a reasonable fee.

Students and faculty who have instructional needs that require special accommodations should check with the director of general educational resources for assistance. GER space is routinely open 50 hours during the week for scheduled classes, noncurricular instructional activities and study. Teaching and learning aids can be made available upon request. Classroom space is usually open for study purposes from 5:00 p.m. to 8:00 a.m.

Microscope Rental. Students must have microscopes for medical technology, anatomy, and pathology courses. Students who do not own a microscope may rent one through Rush University (see Financial Affairs). A carrying case and an off-campus pass (valid for the duration of the rental period) are provided with each rental microscope. Since students will be held responsible for microscope damage and loss, homeowner's insurance might be considered.

GER provides lockers to store the microscopes and distributes major course syllabi and microscope slide sets to those lockers.

Learning Resource Center

The Chauncey and Marion Deering McCormick Learning Resource Center (MLRC), an audiovisual learning facility, houses an audiovisual media collection and provides on-site support equipment for its use. MLRC is designed to encourage independent study and self-enrichment and to provide access to reserve audiovisual materials. Seven rooms allow large and small group media viewing with either 16mm film, 3/4" videocassette, 1/2" VHS videocassette, videodisc, audiocassette, slide, or slide/audiocassette. Three of the rooms are connected to the Rush Television Network, the Medical Center's closed-circuit television

patient education system. Another room houses 17 individualized slide/audiocassette carrels. MLRC staff is always available during service hours to help with equipment operation.

Primary purposes of MLRC are to build the audiovisual media collection and provide services for the Medical Center which include purchase, preview, rental, and interlibrary loan. The present media collection numbers 4,606 titles and is accessible by the Library Information System (LIS), the joint library/MLRC on-line catalog, and by an annually revised holdings list. All media in the collection have been previewed and recommended for purchase by faculty. All programs in the collection may be reserved in advance by faculty and students for use within MLRC or elsewhere in the Medical Center.

MLRC provides complete media reference services. The staff assists faculty and students in locating commercially produced media for use within their courses. This service includes consultation with Audiovisuals On-Line (AVLINE), the National Library of Medicine audiovisual data base, and compilation of media bibliographies from which faculty and students may select titles for preview.

MLRC provides free, portable electric typewriters and portable audiocassette recorders to students for overnight use.

MLRC staff will arrange individual and group orientations to departmental services upon request. Additionally, MLRC sponsors monthly showings of recent films of general interest to health sciences professionals.

Service hours are as follows:

Monday through

Thursday	8:00 a.m.-11:00 p.m.
Friday	8:00 a.m.-6:00 p.m.
Saturday	9:00 a.m.-6:00 p.m.
Sunday	8:00 a.m.-7:00 p.m.

Hours may be shorter during vacation periods and in summer. The MLRC serves as a 24-hour study hall.

Library of Rush University

The Library of Rush University, although the oldest health sciences library in Chicago, maintains an up-to-date collection of books and journals that serve the entire University and Medical Center. The collection consists of 45,229 books, 50,266 bound serial volumes, and 2,303 current subscriptions. The most valuable and noteworthy works stemming from its early years are maintained in a Rare Book and Special Collection. Housed in an attractively furnished two-story area, the library has easy chairs, carrels and tables for studying or reading.

The reserve collection is in closed stacks behind the circulation desk. Another reserve set of self-serve, core health sciences textbooks is located on the upper floor of the library in the north wing. A staff of nine professional librarians and thirteen technical personnel is available to assist library patrons. Guided tours and an orientation to the library are available during registration periods and on request. The library schedules frequent classes for individuals and groups on the automated catalog and mini-MEDLINE systems. The Library Guide describes library services, circulation periods of books and journals, and hours of operation. The library staff also teaches classes on library research and end-user computer searching, tailoring the classes to meet the specialized needs of different departments.

Patrons are encouraged to use the automated library catalog for information about books, journals, and audiovisuals. The catalog identifies items by subject, any word in the title, author, or year of publication. Information about the item--whether it is checked out or on the shelf, and where it is located in the library--is provided. An important feature of the automated catalog is the ability to find recent journal article references and abstracts by searching mini-MEDLINE. This abbreviated version of the National Library of Medicine's data base includes up to three years of 400 journal titles to which Rush subscribes.

Reference librarians provide assistance in locating and obtaining information and published materials. They also search computerized data bases. The computer search service is one of the most heavily used services of the library. Over 200 data bases are available covering the disciplines of biomedicine, health administration, humanities, and general literature. These may be searched for information (i.e., chemical formulas or financial information about a company), references to published literature or the retrieval of journal article or book pages. There is a charge for computer connect-time and for the printout of bibliographic references or information. Rates, which vary by data base, are available in the Reference Office.

The library assists all patrons to locate materials not held by the Rush University Library. The library borrows materials from other libraries through a variety of local, state, and national networks. To obtain this service, patrons complete an interlibrary loan form, which is available in the library.

The collection reflects the informational needs of the University, faculty, and students as well as of the Medical Center staff. Collection development policies and decisions are

continually reviewed. Suggestions regarding the collection or for specific new purchases are always welcome.

The library is open 92 hours a week with reduced hours during the summer and vacation periods.

Student Affairs

The Rush University Office of Student Affairs works to provide an atmosphere that will enhance students' academic experience. The student affairs staff works closely with students, faculty, and administration to identify areas of student need and to design and implement programs and policies to meet those needs. The office makes special attempts to sponsor cultural, social, and recreational activities that include students from all programs in the University.

Career Development. Each student is assigned an academic advisor who is a member of the faculty. The advisor is knowledgeable about the student's educational program and provides assistance in curriculum selection, academic progression, and professional and career development.

Within Rush Medical College, an assistant dean in the Office of Medical Student Programs has specific responsibility for providing counseling about specialty choice and applications for postgraduate residency positions.

Each winter quarter, the Office of Student Affairs sponsors a career fair to acquaint undergraduate students with a variety of job opportunities available at health care institutions. Additionally, the office keeps extensive files of agency brochures, job descriptions, and announcements, which are available to students throughout the year. Other files contain placement folders for senior undergraduate students that include limited biographical data and any faculty recommendations requested by students. Data from the placement folders is released only with the prior written authorization of the student or former student.

Cultural and Social Activities. Representing the entire University, the Student Programming Board initiates and sponsors activities of interest to all Rush University students. The major objective of the board is to coordinate the cocurricular life of the Rush student community in conjunction with the University Office of Student Affairs.

In 1986-87, the programming board organized monthly "Thank God It's Friday" (TGIF) parties, a Mad Pumpkin Ball, a casino

night, beach party, Open Mike Night, Brown Bag Extravaganza lunches, and an ice cream party. Additionally, the board organized a film series that included many popular, recent films.

Representation on the Student Programming Board is as follows:

Rush Medical College	four students
College of Nursing	four students
College of Health Sciences	two students
The Graduate College	two students

Membership on the board is open to all qualified Rush University students, and members are chosen by college-wide student elections. Students interested in serving on the Student Programming Board or in participating in student activities are encouraged to contact the Office of Student Affairs in 023 Schweppe-Sprague Hall or to call (312) 942-6302.

Other special events organized by the Office of Student Affairs in 1986-87 included a student picnic for campus residents, a career fair, a medical technology career luncheon, a student/faculty blood drive, medical and nursing big sibling programs, and trivia tournaments.

Student affairs coordinates a unique cultural arts program to take advantage of the outstanding musical and theater attractions in Chicago. Discount tickets may be purchased through student affairs for plays, musicals, the Chicago Symphony Orchestra University Night Concert Series and other cultural events. A campus student/faculty art fair, cosponsored by Rush Medical College and the library, gives students the opportunity to display their art works to the Medical Center community.

Discount tickets to major sports events are also available through the Office of Student Affairs. Periodically, the office receives blocks of tickets to the Chicago Cubs and White Sox, the Chicago Bulls, Chicago Black Hawks, and to other professional sporting events.

Housing. Resident students live in Kidston House, McCormick House and on two floors of Schweppe-Sprague Hall. All of these buildings are centrally located within the Medical Center. Individual units range from single occupancy dormitory rooms in Schweppe-Sprague Hall to two-bedroom apartments in McCormick House that accommodate four students. When filled to capacity, current facilities meet the housing needs of more than 25 percent of the total student enrollment.

Application Process. Incoming medical students receive a housing application from the Rush Medical College Admissions Office after they have been admitted. Students applying for admission to other programs receive housing applications from the program directors as part

of the admission process. Returning students may request a housing application from the Office of Student Services, room 119, Schweppe-Sprague Hall.

Because on-campus housing is in great demand, the following set of priorities is followed by the Office of Student Services for assigning students to available units. Students in category number one receive the highest priority followed by those in category number two, etc.

1. Students who wish to retain their present University housing assignment for the following year.
2. Students who wish to change their present University housing assignment to a different unit for the following year.
3. Returning undergraduate students who would like to move into University housing.
4. Incoming undergraduate students from affiliated colleges.
5. Incoming undergraduate students from nonaffiliated colleges.
6. Incoming graduate and medical students who do not live in, and whose families do not live in the Chicago metropolitan area.
7. Returning graduate and medical students who live in, or whose families live in the Chicago metropolitan area.

These priorities will be used as a guide when assigning housing. Students must meet all established deadlines regarding the application process. A returning student living in University housing, for example, who fails to submit a housing application for the succeeding year by the published deadline will not retain his/her number one priority. In addition, other factors such as financial need, room availabilities, or unique individual circumstances may be considered as exceptions. Thus, Rush University reserves the right to make exceptions to these priorities when extenuating circumstances exist.

As already stated, on-campus housing is in great demand. Consequently, to maximize available space, the following configurations will be used in the assignment process:

Schweppe-Sprague	One student
Kidston Single	One student
Kidston Efficiency	One student
Kidston One Bedroom	One student
Kidston One Bedroom	Married couple
Kidston Two Bedroom	Two students
McCormick One Bedroom	Two students
McCormick Two Bedroom	Two-four students

Notification of acceptance into University housing will be sent to each student assigned to

on-campus housing. For students who wish to retain or change their housing assignments for the following year, that notification will take place approximately April 1 each year. Entering students must receive an acceptance for admission before any housing notification will be sent. Notification to entering students will begin approximately May first.

A lease will accompany each letter of acceptance into University housing. The lease, accompanied by a security deposit of one month's rent, must be signed and returned. Failure to return the lease and the security deposit by the specified deadline will result in the loss of the housing assignment. All inquiries regarding housing assignments should be directed to the Office of Student Services.

Rent is payable in equal quarterly installments. Students are billed for rent along with tuition and fees prior to the beginning of each quarter.

Consolidation Policy. In an effort to maximize the number of on-campus housing spaces available to Rush University students, some consolidation of tenants may occur. This consolidation policy will affect only those students who occupy an apartment by themselves that was originally leased to two or more students. Such a situation can occur when a roommate has left University housing during the course of the academic year.

If consolidation is necessary, students involved will be informed in writing. At that time the student will have the following options: share an apartment with another student in any campus building who is also in need of a roommate; find a Rush University student roommate of his/her choice; have a roommate assigned from the available applications or pay the full rent of the apartment.

If the fourth option is chosen, the apartment will become a single accommodation only through the end of the current lease. If the student wishes to renew the lease, the student will have the option of remaining in the apartment with the understanding that he/she will receive a roommate or will be given an opportunity to move to another available apartment.

After all apartments have been consolidated, any available apartments will be offered to students desiring housing. If compatible roommates are not available, a unit may be rented as a single accommodation at the full rental rate of the unit only until the end of the lease. At such time it will revert to multiple occupancy. Again, the student will have either the option of remaining in the apartment with the understanding that he/she will receive a

roommate or the opportunity to move to another available apartment.

Students should address questions concerning the application process, assignment process, or roommate selection to Dr. William Wagner (telephone 312-942-6796). Questions regarding leases and maintenance should be directed to the Office of Property Management (telephone 312-942-6474).

Lockers. The University provides lockers for the storage of coats and books. New students receive locker assignments at orientation. Since the Medical Center assumes no responsibility for the loss of personal property from lockers, it is unwise to store valuables, such as purses or tape recorders, in the lockers. Additionally, students should be aware that all students share lockers. If any difficulties with a locker arise, contact the Office of Student Affairs.

Mailboxes. Campus mail is delivered to student mailboxes located on the seventh floor of the Academic Facility. Since no United States mail is delivered to these mailboxes, arrangements should be made to have all personal mail sent to home addresses.

New students receive mailbox assignments at orientation and should check for mail daily because University personnel distribute dated material through this campus system. Since students are held responsible for meeting deadlines announced in the dated material, students who will be off campus for an extended period of time should make arrangements to have a friend forward campus mail. The Office of Student Affairs is not responsible for mail that accumulates during a student's absence.

Students may obtain interoffice mail envelopes from the Office of Student Affairs. Addressed envelopes may be returned to student affairs, the student mail basket at the receptionist's desk in Schweppe-Sprague Hall or deposited in the student mailbox located on the northwest wall of the mailroom on the seventh floor of the Academic Facility.

Recreation. Rush University students have the opportunity to utilize several facilities in the area for recreation, relaxation and physical conditioning.

- A jogging track (approximately one-fifth of a mile) surrounds four outdoor tennis courts next to the Atrium Building on the corner of Ashland Avenue and Harrison Street.
- An outdoor fitness cluster by Parcourse is located between the Professional Building and McCormick House. The fitness cluster

consists of four series of exercises located in four individual modules--one for stretching and three others that strengthen the major muscle groups. Illustrated panels in the center of the cluster provide detailed instructions.

- Rush University students may also use recreation facilities at the University of Illinois at Chicago. The south wing of the Circle Center and the Illini Center provide space for archery, table tennis, bowling, swimming, billiards, handball, racquetball, tennis, badminton, volleyball, weightlifting target practice, and jogging. Students presenting a valid Rush University identification card are eligible for admission at reduced rates. Schedules of the facilities, rates and hours of operation are posted in the Office of Student Affairs at Rush University.

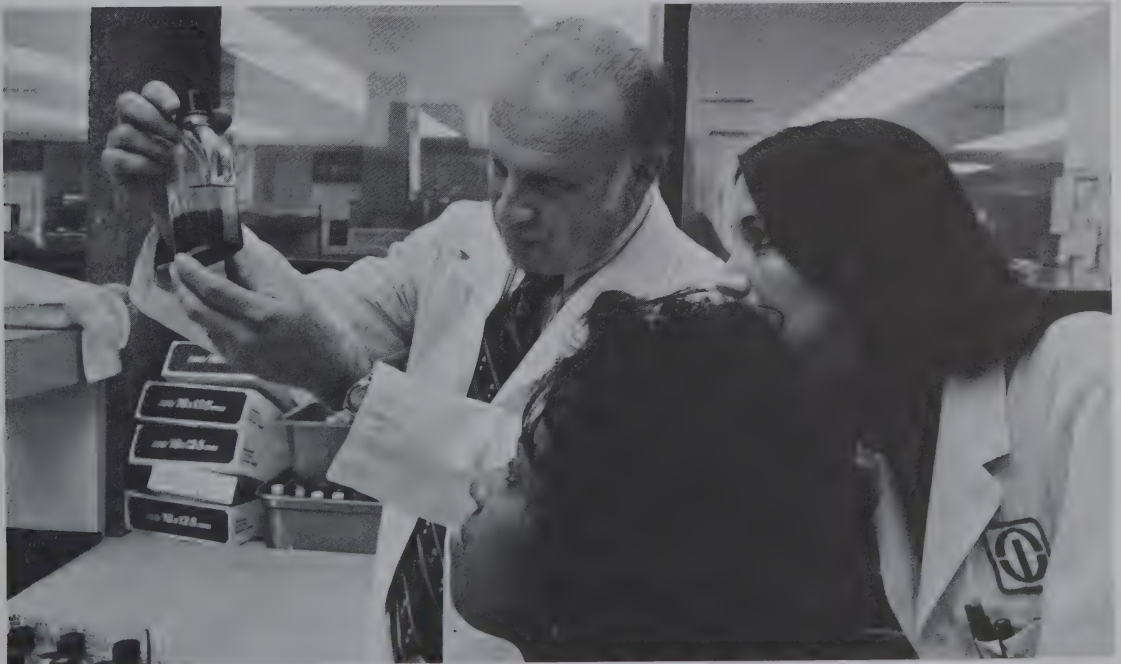
Rush University Day. Rush University Day is an event held each year for all students and faculty. The purpose of Rush University Day is to bring the members of the Rush University community together. A committee comprised of representatives from each college and the University plan a wide variety of activities. The class schedules enable students and faculty to participate in Rush University Day.

Student Organizations. Several student organizations are active at Rush. The Office of Student Affairs serves in an advisory capacity to these groups. A complete list of student organizations is available from student affairs. Students interested in establishing a new organization are encouraged to contact student affairs.

Student Representation. Student representation is unique to each college. Class committee and Faculty Council representatives comprise the Student Council of Rush Medical College. The council's purposes are to increase communication among the four classes and to give students a combined, representative voice on issues that confront them. Elections for Student Council and several standing committees are held each January.

The Student Senate in the College of Nursing is comprised of students elected to the following committees: admissions and progression, curriculum, affirmative action, educational resources, faculty development, and faculty senate. In addition, course representatives are elected. Elections are held each fall and spring.

Students are elected to membership on the College Council in the College of Health Sciences and also serve on committees in individual programs. Students in The Graduate College elect two students to serve on The Graduate College Council.



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Registration

Credit Hours. Rush University is on a quarter system. Each quarter is at least ten weeks in length. An examination period is provided at the end of each term, and most classes give a final examination during this time.

The quarter hour is the unit used by the College of Nursing, the College of Health Sciences and The Graduate College to determine credit for courses taken. As a general rule one quarter hour represents contact time of one lecture hour, two hours of small group discussion or three laboratory or clinical hours per week.

Course credits are not calculated for Rush Medical College students. However, the number of weeks of clinical experiences appears on the transcript of the academic record.

Registration Process. Each quarter a timetable of classes is published by the Office of the Registrar for the subsequent quarter. Classes are filled on a first-come, first-served basis according to the following order of priority: continuing students, new students and unclassified students.

Required Signatures. Registration forms are processed only if the required signatures are obtained. Each graduate student and R.N. completion nursing student must obtain his/her advisor's signature. Registration for more than 16 credits for graduate nursing students or more than 17 credits for all others requires written permission from the program director. The nature of some course offerings may require the instructor's signature in addition.

Registration for Medical Students. Registration for preclinical studies is done administratively except for electives, including the minicourse series (BVH 473). Registration for clinical studies is done in the Office of Clinical Curriculum.

Confirmation of Registration. Registration is confirmed on student data sheets, which include billing and financial aid information. Completion of Registration. Registration is complete only when tuition and any other charges for the quarter are paid or satisfactory arrangements for payment are made. Registration for subsequent quarters is denied to students not cleared by the bursar. Tuition is due on the first day of the quarter. (See section on Financial Affairs.)

Unclassified Students. Persons desiring to enroll in a course may do so on a special *Unclassified Student Registration Form* obtained in the Office of the Registrar. The instructor's approval on the form constitutes approval for registration. An instructor is not obligated to

accept any unclassified student in his/her class, and students without appropriate background take courses at their own risk. Payment of tuition is required before the forms are processed. The bursar will charge tuition at the rate applied to graduate students. However, neither instructor approval nor payment assures a place in the class, since students in degree programs have priority for enrollment in all courses. Therefore, unclassified student registration forms are processed only during the week immediately prior to the first day of classes. Notification is by mail. If an unclassified student cannot be accommodated in a class, a full refund of tuition will be mailed, usually within two weeks.

A student may accumulate no more than 12 quarter hours of academic credit as an unclassified student. These 12 hours, equivalent to a full-time course load, may be taken in one quarter or over a period of time. Registration as an unclassified student that results in more than the maximum number of hours (12) will be permitted if the dean (or his/her designate) of the college offering the course(s) has signed the registration form.

Credit earned as an unclassified student will not necessarily apply toward a Rush degree if the unclassified student is subsequently admitted to a degree program.

Pass/No Pass Option. The timetable indicates all courses that may be taken pass/no pass. One may register to take a course pass/no pass simply by putting an X in the P/N column on the registration form.

A student deciding to take a course pass/no pass after having initially registered should complete the *Pass/No Pass Option Form* available in the Office of the Registrar. This form may require the signature of the appropriate advisor and must be submitted by the second Monday of the quarter. The form may also be used to revert to the letter grade option.

All medical school courses are graded honors (H), pass (P) or fail (F).

Graduate students in nursing may take no more than 20 percent of their total graduate course credits under the pass/no pass option. Therefore, if a nursing student graduates with 55 quarter hours, he/she may take 11 hours pass/no pass; the student who graduates with 125 quarter hours may take 25 hours pass/no pass. Thesis and dissertation hours (NSG 598 and 699), which are graded only pass/no pass, are in addition to the 20 percent limit.

Precandidacy research is graded P/N in The Graduate College. Divisional policies vary on the pass/no pass grading of other courses.

Independent Study. To register for independent study, students should complete the yellow and white *Independent Study Contract Forms* available in the Office of the Registrar. Health systems management students complete the yellow sheet and a separate form available in the health systems management office.

The small yellow sheet must be returned to the Office of the Registrar during registration. It identifies the title of the independent study to be posted on the student's transcript, the preceptor's name and office location and the number of credits for the study. Since this yellow sheet is considered registration for independent study, an advisor's signature is required. All students, including undergraduates, must obtain the appropriate advisor's signature.

The second form is a long white sheet on which the objectives of the study are defined, a plan to meet those objectives is described, etc. It should be completed and approved by the preceptor, department chairman and the program director no later than the first day of the quarter in which the independent study is to be taken. The student's preceptor keeps the contract.

Identification Card. Each student receives an identification card at matriculation. Each term the card is validated at the completion of registration. Registration is complete once satisfactory arrangements have been made for the payment of tuition and fees.

A valid ID card is needed for identification within the Medical Center complex, for use in the library and bookstore, to gain access to residence halls and for admission to some school events. The card must be worn at all times in the Medical Center. A clip or pouch is provided to display the card.

Lost or stolen identification cards may be replaced at the Office of the Registrar during working hours. The office is open 8:00 a.m. to 4:30 p.m. There is a \$5 fee for this service.

Drop/Add. The only way to change course registration is to complete a *Drop/Add Form* available in the Office of the Registrar. The official date of the drop/add action is the date that the drop/add form is processed by the Office of the Registrar. No courses may be dropped after the last day of classes. No withdrawals are allowed during the final examination period. Graduate students and R.N. completion nursing students must obtain the appropriate advisor's signature before the form will be processed. Forms that must be returned for the advisor's signature will be sent through the campus mail.

Medical students wishing to change their clinical schedules must contact the Office of

Clinical Curriculum at least four weeks before the start of the scheduled clerkship.

Withdrawal from School and Leave of Absence. Students may not merely quit going to classes. A formal withdrawal must be made, and the appropriate signatures obtained on the *Clearance Form* available in the Office of the Registrar. No withdrawals are allowed during the final examination period. Refunds are made only during the limits for refunds. (See Financial Affairs section.) This is also required of those going on leave of absence in addition to any requirement for applying for the leave as stated under specific program policies. This procedure assures that students do not obligate themselves for additional tuition, financial aid, and insurance. Insurance may be continued under certain conditions. Failure to complete the form makes the student ineligible for any refunds and the student incurs insurance charges for the full quarter.

Off-campus Concurrent Enrollment. Under special circumstances students may apply to take courses offered by another college or university as if they were Rush University courses. These courses are taken as integral parts of the student's curriculum either replacing required Rush courses or fulfilling special career or discipline objectives. Completion of the *Concurrent Enrollment Form* obtained in the Office of the Registrar, with the appropriate signatures, enables the Registrar to authorize payment of tuition at the other institution. Students, often with the help of their advisors, make their own arrangements to take a course at another institution, and they register at Rush for the appropriate hours of credit and pay the Rush tuition rate. Students must provide an official transcript from the other institution, and a grade for the course will be recorded on the Rush transcript.

Grades and Transcripts

Grade Report. A quarterly grade report is mailed each term to each student's local address as soon as grades have been recorded. Grades are usually mailed within five working days of the end of the examination period. Grades will not be issued over the phone or given to students who attempt to pick them up in person.

The quarterly grade report is the student's copy only, and it should not be accepted by an institution or agency in lieu of an official transcript.

Grading System

Grade	Quality	Grade Points
A	Excellent	4
B	Good	3
C	Satisfactory for undergraduates but may not be acceptable at the graduate level	2
D	Minimal pass for undergraduates and may not be acceptable at the graduate level in the College of Health Sciences. Not used at the graduate level in the College of Nursing or The Graduate College	1
F	Failure	0
P	Passing	
N	Not Passing	
H	Honors--Rush Medical College only	
W	Withdrawal prior to midterm	
WP	Withdrawal passing after midterm	
WN/WF	Withdrawal failing after midterm	
K	Credit earned through proficiency examination	
NR	Grade not reported by instructor	
I	Incomplete	
CC	Course Continues into the next quarter. Grade received at the end is then recorded for all terms covered by the course	
XX	Participation in an ungraded course or residency	

Rush Medical College uses honors (H), pass (P), and fail (F).

Academic Record. The permanent academic record is the student's official transcript that includes all course work taken at Rush University. External transcripts for medical students reflect the highest grade reported for each course at the time a transcript is requested. The academic record is maintained permanently in the Office of the Registrar.

Transcript Requests. Copies of the academic record may be obtained at no cost to the student or former student. These transcripts are released only with prior written consent of the student. Students may either complete a transcript request form or write the Office of the Registrar, 1743 West Harrison Street, Chicago, Illinois 60612. The letter must include a handwritten signature of the student. Transcripts will not be released if the student has an outstanding financial obligation to the University. Two days should normally be allowed for processing.

Requests by medical students for transcripts to be used in support of residency applications should be made to the Office of Clinical Curriculum of the medical college rather than to the Office of the Registrar.

Copies issued to students will be stamped in red ink "Issued to Student." All copies bear the signature of the registrar or his/her designate and the seal of Rush - Presbyterian - St. Luke's Medical Center.

Commencement.

Commencement Ceremony. Rush University commencement is held annually at the end of the spring quarter. The exact date for commencement is published in the academic calendar appearing in the timetables of courses and in the *Rush University Bulletin*. Students will be notified by the Office of Student Affairs concerning participation in the event. Students are expected to march in commencement exercises.

The Office of the Registrar asks students to specify how they want their names printed on their diplomas and in the commencement program. Students also will be asked to supply a forwarding address where mail can be sent after graduation.

Information regarding degree requirements, deadlines and eligibility to participate may be obtained from program directors. Students whose academic plans change, making them ineligible to participate in the June ceremony, will be deleted from the commencement list for that academic year. However, they are then eligible to participate the following June should they successfully meet degree requirements.

During the ceremony, diplomas are given to students who have completed their programs, discharged their financial obligations to the Medical Center and returned all library books and other University property. Students will be notified of all outstanding obligations, and the Office of the Registrar will encumber the diplomas and transcripts of students until these obligations are met.

Awarding of Degrees. Rush University degrees are granted on the last Saturday of the quarter in which all degree requirements are completed. When degree requirements are met during the break following a quarter, the degree will be dated the end of the subsequent quarter. Degree requirements include all curricular and other program prerequisites, such as required courses, residency, minimum grade point average, cumulative quarter hours, etc. (See program descriptions for details.) Before a

degree may be granted, all grades of incomplete (I) must convert to final grades.

Outstanding financial and other Medical Center obligations have no effect on the awarding of degrees; however, the diploma, student transcript, and other notification of a degree awarded will be withheld until these Medical Center obligations have been met.

Graduation Requirements. (See program descriptions for specific requirements.) Each candidate for the degree of D.N.Sc. or Ph.D. or for an M.S. with thesis is required to submit a degree approval form to the Office of the Registrar after completing all academic requirements including dissertation defense and submission of the dissertation to the library for microfilming. Doctoral candidates may not participate in the commencement ceremony before submitting this form.

Dual Degree. (undergraduates in nursing and medical technology) Some affiliated colleges award a bachelor's degree to students who have transferred to Rush University. Students receive the degree after they have met degree requirements of the affiliated college. Often those requirements have been modified slightly to accommodate the unique nature of the affiliated Rush program. Questions regarding degree requirements and eligibility should be directed to the registrar of the affiliated college.



To receive a degree from the affiliated college, each student must authorize the registrar of Rush University to send an official transcript of Rush course work to the affiliated college.

Graduation Honors. Candidates for the bachelor of science degree who have demonstrated academic excellence are honored at commencement by the Rush University faculty. Those earning a 3.4 or better grade point average based on six quarters at Rush are awarded the bachelor of science *cum laude*; those with 3.6 or better, *magna cum laude* and those with 3.8 or better, *summa cum laude*. Only Rush University course work is calculated into the grade point average. Honors appear on the student's diploma and are announced during the commencement ceremony.

Prizes and Awards. The following prizes and awards are generally given annually at the Rush University Awards Ceremony:

The Aesculapius Award

This award is given to the outstanding resident-physician as voted by the medical students.

The American Medical Women's Association Scholarship and Achievement Citations

These citations honor women in the graduating class of Rush Medical College for outstanding scholarship and achievement.

The Dayton Ballis Humanities Award

This award is given to a Rush Medical College student for academic excellence in the humanities related to medicine.

The Arthur Dean Bevan Award

This award is given to the graduating medical student who has demonstrated clinical and academic achievement in surgery.

The Daniel Brainard Award

This award is given to the outstanding teacher in the basic sciences as voted by the medical students.

The Ciba-Geigy Award

This award is given for outstanding community service by a sophomore medical student.

The Clinical Award

This award is given to the undergraduate nursing student who has consistently demonstrated outstanding clinical performance.

College of Health Sciences Dean's Award to an Undergraduate Student

This award is given for outstanding academic performance by an undergraduate student.

College of Health Sciences Dean's Award to a Graduate Student

This award is given for outstanding academic performance by a graduate student.

College of Health Sciences Faculty Award

This award is given to the outstanding teacher on the faculty as selected by the students.

The College of Nursing Dean's Award to an Undergraduate Student

This award is given for superior academic achievement in the undergraduate nursing program.

College of Nursing Dean's Award to a Graduate Student

This award is given for superior academic achievement in the graduate nursing program.

College of Nursing Undergraduate Faculty Award

This award is given to the outstanding faculty member as voted by the senior students.

The Communication Disorders and Sciences Award (Audiology Major)

This award is given to the outstanding graduate student as selected by the faculty.

The Communication Disorders and Sciences Award (Speech-Language Pathology Major)

This award is given to the outstanding graduate student as selected by the faculty.

Community Service Award

This award is given to the undergraduate nursing student who has made significant community service contributions.

The Department of Family Practice Award

This award is given to the graduating student who has demonstrated academic excellence in family medicine.

Department of Health Systems Management Award

This award is given to the outstanding graduate student as selected by the faculty.

The Nathan M. Freer Prize

This prize, endowed in 1892, is given to the outstanding senior medical student as voted by the faculty.

Gerontology Award

This award is given to the undergraduate student who has demonstrated excellence in gerontological nursing.

The John Giles Prize

This award is given for outstanding undergraduate work in epidemiology and public health as selected by the Department of Preventive Medicine.

The Janet M. Glasgow Memorial Award of the American Medical Women's Association

This award is given to the female medical student who graduates first in the class.

Golden Lamp society Award

Presented to the outstanding doctoral nursing student for research and scholarship

The Graduate College Award

This award is given for excellence in research among students enrolled in The Graduate College.

The Graduate College Faculty Award

This award is given to the outstanding teacher on the faculty as selected by the students.

The James B. Herrick Internal Medicine Award

This award is given to the graduating student who has demonstrated outstanding achievement in internal medicine.

The Kellogg Scholarship Award to a Doctoral Nursing Student

This award is given for superior academic achievement in the doctoral nursing program.

The Lemmon Company Student Award

This award is given to the graduating medical student who has excelled in the study of obstetrics and gynecology as demonstrated by excellence in scholarship and concern for patients.

The Henry M. Lyman Memorial Prize

Endowed in 1908, this prize is given to a junior medical student for outstanding work.

The Nephrology Award from the Muehrcke Family Foundation

This award is given to the graduating student who has demonstrated outstanding achievement in the field of nephrology.

The Occupational Therapy Faculty Award

This award is given to the student who has demonstrated the greatest potential for contribution to the field of sensory integration as selected by the faculty.

The Sir William Osler Pathology Prize

This prize is given to the medical student who has demonstrated outstanding achievement in diagnostic or experimental pathology.

The David Peck Prize

This prize is awarded to the student who has made the greatest contribution to the Student National Medical Association.

Bernard R. Pennington Memorial Award

This award is given for excellence in pastoral service as selected by the faculty in the Department of Religion and Health.

The Phoenix Award

This award is given to the outstanding physician-teacher as voted by the medical students.

The E. Virginia Pinney Award

This award is given to the graduate student who has demonstrated the greatest potential for contribution to the field of clinical dietetics as selected by the faculty.

Professional Organization Award

This award is given to the undergraduate nursing student who has demonstrated outstanding involvement in professional organizations resulting in relevant contributions to the nursing community.

Rush-Presbyterian-St. Luke's Nurses Alumni Association Award

This award is given to the outstanding graduating nursing student.

The Sandoz Award

This award is given to the graduating student who has demonstrated outstanding achievement in the field of psychiatry.

Special Project Award

This award is given to the undergraduate nursing student who has demonstrated outstanding creative and original work as evidenced by a course project.

The Samuel G. Taylor III Prize

This award is given to the graduating student who has demonstrated excellent achievement in medical oncology.

The Undergraduate Cardiology Award

This award is given to the graduating medical student who has had the best performance in a cardiology elective course.

The Upjohn Achievement Award

This award is given to the senior medical student with the best research project.

Writing Award

This award is given to the undergraduate nursing student who has demonstrated outstanding scholarly and/or creative writing.

Student Records

Name and Address Change. The Office of the Registrar maintains the current official listing of student names and addresses for Rush University. It is the responsibility of the student to keep the Office of the Registrar informed of changes in this information. A name/address change form is available in the Office of the Registrar. These changes are made daily on the computerized University Information System. It is suggested that the student also inform advisors and instructors of these changes.

Directory Information Policy. Certain information classified by Rush University as directory information may be disclosed to the public. These are items of directory information: student's full name, local address and phone number, date and place of birth, home town, major field of study, year in school or class, participation in officially recognized activities, dates of attendance, degrees and awards received, previous educational institutions attended, previous majors, previous degrees, and dates earned.

Each fall quarter the *Rush University Student Address Book* is published for student, faculty and staff use. It contains student names, local addresses and phone numbers, majors and classes. At the time of commencement exercises this information may be released in public announcements: student's full name, degree and major, previous institution and degree(s) and year(s) earned, and home town.

Students may restrict the release of any item of information considered as directory information on a form provided in the Office of the Registrar, 101 Schweppe-Sprague Hall, by Friday of the first week of classes in each quarter.

Student Records Policy. The Family Educational Rights and Privacy Act of 1974 protects the privacy of current and former students enrolled in most educational institutions. Rush University has seven official student records. A student or former student may inspect and review these records after making an appointment with the appropriate office.

The records and their locations are as follows:

- official academic record: transcript--Office of the Registrar, 101 Schweppe-Sprague Hall
- registrar's folder: contains admission application, transcripts from other schools, registration information--Office of the Registrar, 101 Schweppe-Sprague Hall
- dean's folder: (Rush Medical College) a complete academic file which contains grade reports, written evaluations of clinical work, curricular flow charts, copies of correspondence and of all material in the Registrar's folder--Office of Clinical Curriculum, 524, Academic Facility; (College of Nursing) contains written evaluations of clinical work, curricular flow charts, grade reports--Office of the Program Directors, 436-37 Schweppe-Sprague Hall
- department folder: a complete academic file that may contain grade reports, written evaluations of clinical work, curricular flow charts, copies of correspondence and of all material in the Registrar's folder--clinical nutrition--502 Schweppe-Sprague Hall; communication disorders and sciences--203 Senn; health systems management--202 Academic Facility; medical physics--023 Woman's Board Cancer Treatment Center; medical technology--432 Schweppe-Sprague Hall; occupational therapy--418 Schweppe-Sprague Hall; religion and health--706 Schweppe-Sprague Hall; The Graduate College--474 Academic Facility
- financial affairs folder: records showing all billing and payments, notes and correspondence dealing with a student's finances--Office of Student Financial Affairs, 101 Schweppe-Sprague Hall
- financial aid folder: all information concerning financial aid for the student--Office of Student Financial Aid, 101 Schweppe-Sprague Hall
- placement folder: contains letters of recommendation filed by faculty members at the request of the student--Office of Student Affairs, 023 Schweppe-Sprague Hall

Students may obtain copies of transcripts from the institutions that hold the original records. Other portions of their records will be copied upon request. The request must be in writing and signed, must specifically identify the record desired and include the student's major, year in school or class, date of birth and social security number. There is no charge for copies of the student transcript. Other reproductions cost 50 cents per page. The University honors requests providing there is no outstanding obligation to the Medical Center. Students within commuting distance may be asked to review the desired data in person.

Students may request that the University amend information in their records they believe to be inaccurate, misleading or in violation of their privacy. If the office handling that file refuses to amend a record, the student may request a hearing to challenge that decision. A hearing will be granted. Students may place in their educational records comments upon information in the records and/or state their grievances with a decision not to amend the record.

Administrators who maintain the records adhere to a policy of limited access to administrators and faculty of Rush University who have a need for information in order for their offices to function, to determine academic progress or to designate award recipients. Other persons or organizations given access are those responsible for accrediting the institution, for providing the student with financial aid, for complying with a judicial court order and for protecting the health or safety of students during an emergency.

Disclosure of any student's record to others not listed in these policies must have prior written consent of the student. Requests for information and letters of consent are kept with the records.

Human Investigation

Any project or study involving human subjects must have approval of the Medical Center Committee on Human Investigation. Studies in the community as well as within the Medical Center must have this approval. The Office of Research Administration handles all requests and has established the protocol for proper investigative procedures.

FINANCIAL AFFAIRS

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Tuition and Fees

Tuition. Tuition and fees for the 1987-88 academic year follow. For estimates of other expenses, see the *Rush University Student Financial Aid Handbook*.

Tuition	Full Time (Per Quarter)	Part Time (1-11 Hrs.) (Per Quarter Hr.)
Undergraduate	\$2,000.00	\$180.00
Graduate (M.S., D.N.Sc., Ph.D) & Unclassified	\$2,350.00	\$200.00
Rush Medical College Years 1 and 2	\$4,900.00	
Years 3 and 4	\$3675.00	

Medical Students are charged for a maximum of four years of full time tuition. Student needing additional quarters to complete degree requirements will be charged the enrollment fee. See fees below. Although it may be possible for a medical student to complete all degree requirements prior to the spring quarter of his/her fourth year the spring tuition charge must be paid for a total of four years of tuition.

Fees. Enrollment Fee. Students in special programs are assessed \$125 per academic quarter. Students enrolled in a noncredit residency or academic enrichment program prior to receipt of their degree, must be registered for such a course and pay the enrollment fee in order to retain their student status. Any student having an outstanding incomplete after all other required coursework for the degree must enroll for no credit and pay the enrollment fee until the grade is satisfied. Single hospitalization insurance is not covered in this fee. Single coverage in the ANCHOR program for students is provided at no extra charge. (See Student Health Services Program for further information.)

Insurance. All students must have hospitalization coverage. (See Student Health Services Program for further information.)

Application Fee. A nonrefundable application fee of \$25 is required of all applicants to offset the expense of processing the application, evaluating credentials, and maintaining a library of evaluation aids. This fee does not apply to any other charges such as tuition.

Enrollment Deposit. A \$100 enrollment deposit is required of health systems management and medical students prior to matriculation. All nursing students (including

affiliated students) must deposit \$75 prior to matriculation. Other health sciences students submit a \$50 deposit. This guarantees students a place in the entering class. This deposit is nonrefundable and applies toward payment of the first quarter tuition.

Microscope Rental. Microscopes are available to students for a rental fee. Students enrolled in medical technology, microbiology, anatomy, and pathology courses must have microscopes. Rental fees will be included in the fall quarter bills for first-year medical students and third-year medical technology students. Students will be billed once for the entire rental period. Students taking anatomy, microbiology, and/or pathology will pay \$93 per year or \$186 for the entire two-year period (medical students). Junior-year medical technology students will pay \$93 for one year. Any student who withdraws from the University or obtains a microscope from another source, should notify the director of General Educational Resources who will authorize the bursar to prorate monthly the rental fee. (See General Educational Resources in Campus section.)

Returned Checks. If a student gives the University a check that is returned by the bank upon which it was drawn, marked "not sufficient funds," "payment stopped", or "account closed", a \$10 charge will be assessed for each occurrence.

Payment for Tuition, Fees, and On-campus Housing

The following statement represents the payment policy for all Rush University students.

Payment for tuition, fees, and on-campus housing, or satisfactory arrangements for payment, must be made with the Office of Student Financial Affairs before registration is complete. Students may not attend classes until after registration is complete. Any exception to this policy must be approved in writing by the vice president for academic resources.

Students are responsible for completing one or a combination of the following courses of action on or before the first day of classes each quarter:

1. Pay total tuition, fees and on-campus housing charges for the quarter.
2. Complete a deferred payment plan contract. This plan requires that one-third tuition, all fees and a \$15 service charge be paid on or before the first day of class. Additional payments of one-third are due on the fourth and eighth Mondays of the quarter. Contract

forms are available in the Office of Student Financial Affairs.

3. Use the pending financial aid payment option. All students who have financial aid pending will be allowed to defer payment of that portion of tuition and fees that is covered by the anticipated aid. In order to use this option, students must have taken all the steps required of them to apply for the aid (e.g., the application for a guaranteed student loan or Rush Tuition Loan program must have been completed and submitted to the financial aid office). In order to avoid a late fee charge, students must make arrangements for payments of that portion of tuition and fees not covered with pending aid by completing steps one or two above.

Those students who have not made satisfactory arrangements will be given notice by mail during the third week of classes that they are delinquent in their financial obligations to the University. The notification will inform the students that they have until Friday of the fourth week of classes to satisfy all such financial obligations. On Monday of the fifth week of classes, those students who have not made satisfactory arrangements will be charged a \$100 late payment fee.

Students who choose the deferred payment plan contract and who fail to make a payment on the specified due dates will have until Friday of that week to satisfy their financial obligations without penalty and that failure to do so will result in a \$50 late payment fee for each payment date missed. No notification is mailed since the rules are included in the signed contract.

At the end of the quarter, those students who still have outstanding balances with the University that are not covered by pending financial aid will receive neither grades nor transcripts; be dismissed from on-campus student housing; lose all University privileges and have their registration cancelled for the following quarter.

Refund Policy

Official withdrawal or dismissal from a course or from the University entitles a student to a refund of tuition according to the following schedule. No fees are refundable.

A student may receive a 100 percent refund if withdrawal occurs during the first calendar week in which the quarter begins. Otherwise, refunds will be made as follows:

Second week	80 percent refund
Third week	60 percent refund
Fourth week	40 percent refund
Fifth week	20 percent refund
After fifth week	no refund

Refunds will be shown as credits on the student's account unless the student requests a check for the amount of refund, less any amount still owed for other charges. Normally, checks are processed within two weeks. Students are not notified when the check is available in the Office of Student Financial Affairs.

Student Health Services Program

The University's health services program is designed to promote the health and well-being of its student population and to protect the individual student from undue financial hardships that a medical emergency could cause. To accomplish this the University offers membership in two separate group insurance policies that, when combined, fulfill its goal of student health maintenance and protection. Unclassified students do not qualify for membership in Rush University's insurance programs.

The first is a group hospitalization policy underwritten by Blue Cross covering most of the hospital charges related to an inpatient stay or an emergency room visit. Applications are available at the Office of Student Financial Affairs and at fall registration when all students are required to provide proof of hospitalization coverage or sign up for Rush's Blue Cross plan.

As with all group policies, there is an annual open enrollment period when a subscriber may add dependents or make changes. Rush's Blue Cross enrollment occurs during the first two weeks of fall quarter, and the only other time a dependent may be added is within 30 days of the date of marriage or the birth of a child. A booklet available at the student financial affairs office explains in more detail the exact coverage and exclusions. The student financial affairs office is located in 101 Schweppe-Sprague Hall.

Although membership in Rush's Blue Cross plan is not mandatory, it is a requirement that all students carry some hospitalization insurance from their date of matriculation until graduation. Upon entering Rush many students are covered by a family policy; however, all family policies have maximum age limits for children, normally

19 to 23 years of age. As a result, even though a student may be adequately covered upon entering Rush, at some date that coverage may stop. The University has no way of knowing when this will occur; consequently it is the student's responsibility to notify the student financial affairs office prior to that critical birthday so that there will be no lapse in coverage. This is extremely important, as all students must have hospitalization insurance. This is why, during fall registration, the financial affairs office requires all students to provide proof of alternative hospitalization coverage or join Rush's Blue Cross group plan. Proof of alternative hospitalization consists of presenting a current hospitalization policy or member identification card.

If, during the school year, a student wants to drop his/her Rush Blue Cross coverage, he/she must first show proof of similar coverage elsewhere before the University's coverage will be dropped either at the beginning or end of the month.

The second group plan at Rush is the ANCHOR Health Maintenance Organization Plan. ANCHOR offers outpatient primary care aimed at the prevention of illness, maintenance of good health and early detection and treatment of disease. When illness does occur, comprehensive care is provided through ANCHOR's group of primary care physicians and specialists. ANCHOR's benefits cover most physician and related fees including up to 20 outpatient mental health visits per calendar year for short-term evaluation and crisis intervention. Single membership in ANCHOR is available at no charge for all degree-seeking Rush students who are registered (i.e., being charged tuition or enrollment fee). Coverage does not begin until an ANCHOR application is properly filled out. As with Blue Cross, fall quarter registration is the annual ANCHOR enrollment time at which students can add a spouse or child to their policy. The only other time additions to one's coverage can be made is within 30 days of the date of marriage or the birth of a child.

Currently, ANCHOR has 18 offices throughout the Chicago area with Saturday hours and some evening hours. When a student first joins, he/she selects a personal physician from among the ANCHOR staff, as well as the office location he/she thinks would be most convenient.

Normally, the central office located in the Triangle Building on the main campus will be most convenient. To aid students in their selection of a physician, a current list of participating physicians is available at the student financial affairs office or in any of the ANCHOR offices. As with Blue Cross, a booklet explaining in more detail the coverages and services available through ANCHOR is available from the Office of Student Financial Affairs.

Students should be aware that ANCHOR coverage does not include a hospitalization plan.

The following tables reflect 1987-88 Blue Cross and ANCHOR rates. Rates are subject to change.

Blue Cross		
<u>Coverage</u>	Per Quarter (Including Summer)	
Single	\$116	
Family	\$430	
ANCHOR Per Quarter		
<u>Coverage</u>	<u>Enrolled</u>	<u>Not Enrolled</u>
Single	\$ -0-	\$ 93
Couple	93	185
Family	166	259

Returning students who were on Rush's insurance plans in the prior quarter will be dropped if they are not registered by the second week of classes. It is the students' responsibility to reapply for the insurance once they are registered.

FINANCIAL AID

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Financial Assistance

The financial aid program has been established at Rush University to provide assistance to students who cannot afford to pay the full cost of education through their personal or family resources.

In general, financial need is the basic criterion for the awarding of funds by Rush University. Accordingly, students and their families will be expected to contribute toward educational expenses to the fullest extent possible. The level of the expected contributions is determined by using a standard set of criteria to analyze financial information provided by the students and their families. If the available resources fall short of meeting budgeted costs, the financial aid staff will attempt to award sufficient financial aid to make up the difference.

Rush University has created a unique low-cost loan program through the sale of tax-exempt bonds. The Rush Tuition Loan may be used, together with other state, federal, and institutional financial aid sources, to meet the demonstrated financial need of students who have applied for assistance through Rush. Interest accrues on the loan from the time of approval through repayment. The current interest rate of 8.5 percent may vary annually throughout the life of the loan. Repayment begins three months after cessation as a student, and the minimum monthly payment is \$25. Rush Medical College borrowers have 13 years to repay the loan and all other University borrowers have ten years to repay the loan.

Detailed information on financial aid and the application procedure is provided in the *Rush University Student Financial Aid Handbook*, which is available in the Office of Student Financial Aid. The staff is available to consult with students and parents on all matters regarding the financing of a Rush University education. Students and parents are welcomed and encouraged to make use of these services.

Satisfactory Academic Progress

In order to receive financial assistance from federal Title IV aid programs (Guaranteed Student Loan, Perkins Loan Program, Supplemental Educational Opportunity Grant, and College Work Study), the student must be making satisfactory academic progress. This federal requirement is contained in section 497(e) of the Higher Education Act of 1965, as amended, and is meant to ensure that only those students who make good progress toward their

degree objectives continue to receive federal financial assistance.

Rush University's policy regarding satisfactory academic progress follows. This policy is distinct from the academic policies of each program published elsewhere in this bulletin.

The maximum length of time for a Rush University student to complete degree requirements will be the length of time normally required for a student continuously enrolled on a half-time basis to complete a specific program. Thus, students would not be eligible for federal assistance if enrolled for more than four years in a program that is normally completed in two years. Likewise, students would lose financial aid eligibility if enrolled for more than eight years in a program normally completed in four years. Students attending Rush University on a part-time basis must complete a minimum number of hours each year to determine eligibility for continued federal assistance. Further information on eligibility is available in the Office of Student Financial Aid.

Students who are denied financial assistance due to failure to make satisfactory academic progress may appeal to the director of their program. The director may reinstate the student's satisfactory academic standing by providing a written statement to the Office of Student Financial Aid explaining how the student will be making progress toward the degree.

Financial Aid Awards

After evaluating the personal and family resources available to the student and taking into consideration awards from external sources, the Office of Student Financial Aid will award funds under the control of the University to students who have remaining unmet need. In varying quantities, a financial aid award may include scholarships/grants, loans, and employment. In order to distribute the available funds in the most equitable manner, the Office of Student Financial Aid establishes a formula which designates the sequence in which funds are awarded to students and the maximum amount awarded under each program. The formula provides for a certain amount of loans and sometimes employment before students are given consideration for scholarships. These formulas are applied consistently during any given year among all students at a given class level in a given college, as long as funds are available. Due to differences in the availability of funds from year to year and changes in eligibility requirements, the formulas are adjusted annually.

Institutional Scholarship and Loan Funds

Listed below are the organizations and named endowments that provide scholarship assistance to Rush University students.

Rush-Presbyterian-St. Luke's Medical Center
Nurses Alumni Association
The Associates
Orpheus William Barlow, M.D.
Broda O. Barnes, M.D.
Alexander Brunschwig, M.D.
Carlson-Luckhart
Rush University Faculty Wives Association
Rush University Faculty Women's Association
Ben Fishkin, M.D.
Clark W. Finnerud, M.D.
Eunice Goebel Greeley
Jules and Eleanor Green
Florence D. Hagenah
Drs. Jones/Thompson/Ramsey/Kehoe
Philip N. Jones, M.D.
George M. Katzman, M.D.
Laurel E. Keith, M.D.
John L. and Helen Kellogg Foundation
Earl Leimbacher, M.D.
Lescrenier Medical Physics Scholarship
Foster G. McGaw
Pappageorge Memorial Scholarship
Robert Ryan, Jr., M.D.
Elizabeth Douglas Shorey
Emily BirnieSmith
Charles H. Solomon, M.D.
C. M. Swale
Homer Thomas Trust
Rush-Presbyterian-St. Luke's Medical Center
Woman's Board

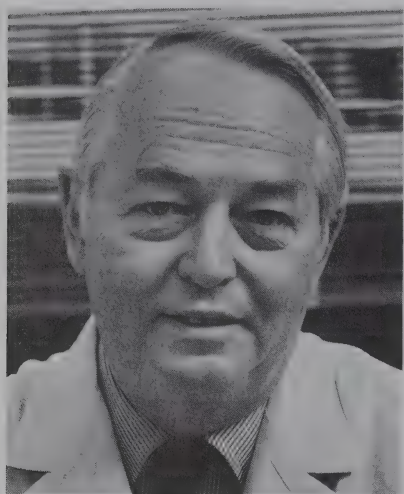
In addition, Rush University has loan funds available through resources provided by various donors and named loan programs.

Abbott Laboratories
Carl O. Almquist, M.D.
Aileen S. Andrew Foundation
Irving E. Benveniste
M. Irene Cavanaugh
Charity Hospital Association
Episcopal Medical Student Loan
Henry H. Everett, M.D.
Donald W. Fergusson
George Guibor, M.D.
Illinois State Medical Society
John Jacques, M.D., and Lawrence Jacques, M.D.
Krehbiel Medical Student Loan
Grace M. Marshall Educational Foundation
Rush-Presbyterian-St. Luke's Medical Center
Medical Staff
Dr. David Monash
Joseph J. Muenster, M.D.
Anne M. and Paul J. Patchen, M.D., Loan
Frederick Henry Prince
Rush Medical College Alumni Association
Heyworth and Catherine Sanford
Simon M. Shubitz, M.D.
Searle Scholars Program
Procto C. Waldo
Jane Wheeler Warren
Vivian Weil
Rush-Presbyterian-St. Luke's Medical Center
Woman's Board



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Department of Communication Disorders and Sciences	66
Department of Health Systems Management	70
Department of Medical Physics	73
Department of Medical Technology	76
Department of Occupational Therapy	79
Department of Religion and Health	83
The Graduate College	85
General and Academic Information	85
Division of Anatomical Sciences	89
Division of Biochemistry	93
Division of Cell Biology	98
Division of Immunology	99
Division of Medical Physics	103
Division of Pharmacology	107
Division of Physiology	111
Division of Psychology	117



*Henry P. Russe, M.D., Dean
Rush Medical College*

"Medical Education at Rush fosters inquiry, facilitates the acquisition of knowledge, builds lifelong habits of learning, and recognizes the unique qualities of physician and patient as essential to the process of compassionate and effective care."



RUSH MEDICAL COLLEGE

Philosophy

The process of becoming a physician is unique for each student who enters Rush. Each brings to his/her medical school experience a distinct educational, psychological and social background. As students define career goals, each develops personal ways of coping with the demands imposed by the physician's role. The Rush Medical College curriculum encourages pursuit of individual interests by emphasizing a solid foundation in the basic sciences and by offering a wide range of elective opportunities in the Medical Center and in a network of affiliated and associated hospitals. Throughout the program, students are encouraged to develop habits of self-education and enthusiasm for the lifelong study of medicine according to specific interests and objectives. Upon matriculation, students are assigned academic advisors whose primary responsibilities are to provide guidance and serve as resources for students as they define professional goals, select courses, and deal with a variety of issues during their progress through medical school.

Long after students have taken their last medical school examinations, the sense of responsibility for the welfare of their patients remains the most important stimulus to maintaining the highest level of professional performance. The Rush faculty seeks to provide educational opportunities and to create an environment that will foster the ability to meet these responsibilities with competence and compassion.

Admission Requirements

Selection Process. Rush Medical College is strongly committed to the selection of individuals who will become vital members of the medical community as students, practitioners, educators, and researchers. Throughout the curriculum, emphasis is placed on the preparation of physicians who will function chiefly as medical practitioners and who will be committed to the delivery of quality health care to a variety of populations, including those that are now underserved.

Because Rush seeks to train physicians who will be committed to meeting society's health care needs, the Committee on Admissions seeks excellence in academic achievement and in noncognitive factors such as character, goals, personality, accomplishments, and experience.

High scholastic achievement is only a partial qualification for acceptance. The Committee on Admissions looks for individuals who exhibit social and intellectual maturity, personal integrity, motivation and concern. Strong preference for admission is given to residents of Illinois.

Admission to Rush Medical College depends upon satisfactory completion of a minimum of 90 semester hours (135 quarter hours) of undergraduate study before matriculation.

Rush requires all entering students to have successfully completed at least two semesters of physics; two semesters of biology, with emphasis in zoology; two semesters of inorganic chemistry, and two semesters of organic chemistry. In lieu of two semesters of organic chemistry, students may take one semester of organic chemistry and one of biochemistry. Survey courses in the premedical sciences will not fulfill these requirements. For students in special programs, exceptions to these requirements may be made on an individual basis. Courses in mathematics, social sciences, and English are strongly recommended. The committee suggests that comprehensive courses be selected that include study in the following areas: biology - molecular, cellular, developmental, and population; inorganic chemistry - properties of the elements, states of matter, chemical reaction, and aqueous solutions; organic chemistry - stereochemistry, covalent bonding, hydrocarbons, and organic compounds; and physics - mechanics, electricity, wave characteristics, thermodynamics, nuclear structure, and optics.

Because the required courses provide the foundation upon which modern biological and medical sciences are built, the committee gives special attention to competence in these areas. The committee requires that all of the course work submitted in fulfillment of specific admissions requirements must be evaluated on the basis of a traditional grading system. Such a system must employ a range of numbers or letters to indicate the comparative level of performance. If the applicant has received a grade of pass/credit for any courses on the required list, he/she must have the instructor supply, in writing, a statement evaluating the student's performance in that course. Applicants are advised to pursue subjects beyond the stated minimums if they have not done excellent work in the required courses.

Applicants who will have successfully completed three years of college consisting of a

minimum of 90 semester hours or 135 quarter hours, who have no baccalaureate degree but otherwise meet the requirements, will be considered.

Concurrent M.D./Ph.D. Program

Rush University offers students the opportunity for studies that lead to both M.D. and Ph.D. degrees. These programs are particularly suited for students who aspire to careers in academic medicine and research. They enable students to obtain intensive training in specialized areas of the medical sciences while completing their medical studies.

The curricula for students in a combined M.D./Ph.D. program vary widely depending on the individual's previous education, scope of scientific study, and personal interests. Students in concurrent programs must meet the full conditions and requirements of The Graduate College and Rush Medical College. However, coursework leading to one degree may be acceptable as partial credit toward the formal requirements of the other degree. A properly coordinated program may afford a significant economy of time in completing studies toward both M.D. and Ph.D. degrees.

A student who enters Rush University with concurrent enrollment in a graduate program and the medical college will typically complete two years of basic science components of the medical college curriculum before becoming fully involved with requirements of the graduate program. Upon completion of the requirements for the Ph.D. degree, the student will return for the clinical portion of the medical program. Alternatives to this schedule are possible to enable students to develop programs that will most effectively satisfy their career objectives.

Ph.D. programs are offered in The Graduate College of Rush University in the following areas: anatomical sciences, biochemistry, immunology, medical physics, pharmacology, physiology and psychology.

Curriculum

Organization. The four-year Rush curriculum provides an appropriate background for individuals with a diversity of professional career goals. The curriculum is based on establishing a solid foundation in the basic sciences and clinical medicine through a core of required preclinical and clinical courses. In addition, there is ample elective time for students to pursue individual interests.

First Year--Regular Curriculum. The primary objective of the first year is to provide students with exposure to the vocabulary and the fundamental concepts upon which the clinical sciences are based. The first year is comprised of three quarters of basic science material, organized by discipline, that emphasizes the structure, function, and behavior of the normal person. The following courses have been designated for each of the three quarters of the first year.

First Year, Regular Curriculum

Fall	Courses	Hours
ANA 471	Human Anatomy I	100
ANA 451	Histology	82
BCH 471	Biochemistry I	53
PHY 451	Physiology I	60
PVM 452	Preventive Medicine I- Epidemiology/Statistics	12
		307
Winter	Courses	
ANA 472	Human Anatomy II	91
BHV 451	Fundamentals of Behavior	40
BCH 472	Biochemistry II	61
PHY 452	Physiology II	61
		253
Spring	Courses	
BHV 453	Behavior in the Life Cycle	26
BCH 473	Biochemistry III	5
MIC 451	Microbiology Concepts	55
IMM 501	Immunology	54
NEU 451	Neurobiology	78
PVM 453	Preventive Medicine II- Community Health	18
		236
	Total Hours First Year	796

Second Year Regular Curriculum. During the second year, students are concerned with the study of the causes and effects of disease and with therapeutics. Students initiate their work with patients in programs that emphasize interviewing, history taking and the physical examination.

Alternative Curriculum for the First and Second Year. Rush Medical College has established an innovative preclinical program for 18 students in each entering class. This alternative curriculum provides beginning medical students more experience with clinical problems, emphasizes personal responsibility for

Second Year Regular Curriculum

Fall	Courses	Hours
CCS 501	Clinical Concepts & Skills	44
MED 501	Intro. to Psychopathology	33
PHR 501	Medical Pharmacology I	53
PSY 501	Clinical Pathophysiology I	72
PTH 501	Pathology I	74
PVM 503	Preventive Medicine III	16
		292
Winter	Courses	
BHV 453	Observation and Communication	20
CCS 502	Clinical Concepts & Skills	67
MED 502	Clinical Pathophysiology II	77
PHR 502	Medical Pharmacology I	37
PTH 502	Pathology II	48
PVM 504	Preventive Medicine III	10
		259
Spring	Courses	
CCS 502	Clinical Concepts & Skills	12
MED 503	Clinical Pathophysiology III	66
PTH 503	Pathology III	98
		176
Total Hours Second Year		727

Alternate Curriculum: First and Second

First Year	Year
ALT 451	Cellular and Molecular Biology
ALT 464	Behavioral Science I
ALT 471	Epidemiology
ALT 511	Introduction to Patient I
Winter Courses	
ALT 452	Anatomical Sciences
ALT 465	Behavioral Science II
ALT 472	Preventive Medicine II
ALT 512	Introduction to Patient II
Spring Courses	
ALT 453	Physiology & Intro. to Pharmacology
ALT 466	Behavioral Science III
ALT 473	Preventive Medicine III
ALT 513	Introduction to Patient III
Second Year	Year
ALT 514	Introduction to Patient IV
ALT 531	Neurosciences
ALT 540	General Pathology
Winter Courses	
ALT 515	Introduction to Patient V
ALT 541	Pathology, Pathophysiology, and Pharmacology I
Spring Courses	
ALT 516	Introduction to Patient V
ALT 542	Pathology, Pathophysiology, and Pharmacology I

interpersonal skills. The new program involves individual and group assignments.

The content for the two-year program is equivalent to that offered in the regular curriculum, but the learning format is quite different. Each student is provided with specially designed "learning guidebooks" for each unit in the curriculum. The guidebooks outline the basic science content to be learned, illustrate relevant problem-solving approaches and contain appropriate reference material and learning exercises.

Students are organized into study groups with six students in each group. Each group meets formally twice a week for half a day with specially trained clinicians who facilitate student analysis of clinical problems and guide the students in addressing other learning objectives of the small group sessions. The teaching program does not include formally scheduled lectures. However, faculty members from each of the basic sciences are available to answer questions and otherwise discuss the subject matter. Access to laboratories and tutorials for specific objectives in the preclinical curriculum is also included. Learning examinations are

provided for use at the student's discretion. The examinations used in the alternative curriculum are consistent with the goals of the program and include integration of the basic science disciplines with clinical practice and the enhancement of problem-solving skills.

While the faculty believes that all students can benefit from this learning format, the program should be of special interest to students who prefer self-initiated, active responsibility for learning, profit from the give and take of many small group discussions, and enjoy problem solving. Students who elect to be part of the alternative curriculum will remain in the program for the first two years of medical school.

All students admitted to Rush Medical College are eligible for participation in the alternative curriculum. Since the alternative program is

limited to a total of 18 students, it is anticipated that not all interested students will be offered a position in the program. Failure to gain admission to the alternative program will in no way jeopardize a student's status in the regular curriculum. Students who wish to be considered for the program should apply after they have been accepted at Rush Medical College.

Third and Fourth Years. The curricula of the third and fourth years provide students with training in clinical skills, diagnosis and patient management in a variety of patient care settings.

The clinical curriculum includes required core clerkships in family practice, medicine, neurology, pediatrics, psychiatry, obstetrics/gynecology, and surgery, requiring a total of 58 weeks. A total of 20 weeks of elective study in areas of special interest to each student is also required.

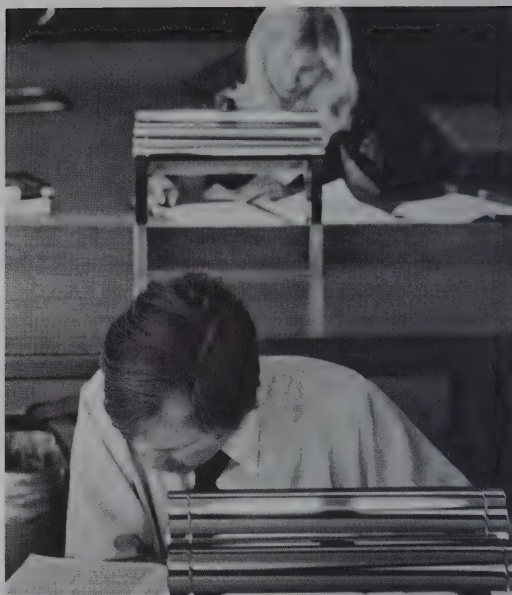
With few exceptions, the required core clerkships are taken at Rush-Presbyterian-St. Luke's Medical Center, Christ Hospital and Medical Center, or Mount Sinai Hospital Medical Center. Eight of the 20 weeks of required elective work must be carried out at Rush-Presbyterian-St. Luke's Medical Center or at one of the affiliated or associated hospitals within the Rush health care network. Up to 12 weeks of additional elective study may be carried out at other approved institutions.

The core clerkships in internal medicine, family practice and surgery must be completed during the third year as prerequisites to a required (core) four week subinternship in internal medicine or family practice which is taken during the senior year.

Though scheduling of the other required core clerkships is somewhat flexible, students are encouraged to complete these clerkships early in order to make better use of elective options in the fourth year. Students participate in assignment of required core clerkships although the final decision concerning core and elective clerkship rotations rests with the Office of the Dean.

Academic Progression. Evaluation of progress at the medical college is an important part of the learning process. Course examinations are aimed at allowing both the students and the faculty to assess progress toward defined learning goals. The final result of evaluation in course work is recorded as honors, pass or fail. At the end of each quarter or clinical period, evaluations are submitted to the Office of the Dean.

The Committee on Student Evaluation and Promotion (COSEP) is a standing committee of



Rush Medical College. The committee determines when students have satisfactorily completed requirements for promotion and may require additional study by students who have not satisfactorily completed aspects of the medical college curriculum. It also recommends candidates for the degree of doctor of medicine to the Faculty Council and accepts the responsibility of recommending to the Faculty Council the dismissal of any student whose academic performance is unacceptable in the judgment of the committee.

National Board of Medical Examiners (NBME) subtests are occasionally used by departments to evaluate student knowledge. Scores from examinations are kept confidential and are not available to any other institution or agency without the prior written permission of the student. Students may review their complete academic record in the Office of Clinical Curriculum on Wednesday and Friday afternoons or by appointment.

Rush utilizes a system of student anonymity for all written examinations. Performance in courses is known only to the student, his/her academic advisor, the course director for each course and appropriate members of the Office of the Dean, provided that a minimum passing level of achievement has been demonstrated. Otherwise, the information is also presented to COSEP. Ratings by clinical instructors and, in most instances, oral and written examinations form the basis of evaluations of student performance in clerkships and, therefore, also

the basis of recommendations for residencies. At the time of application for postgraduate training, a letter of evaluation is written by the Office of the Dean with major contributions from the student's academic advisor. During the composition of this letter, an individual conference is held with the student, and all pertinent factors for the letter of evaluation are assessed.

Academic Policies

(Additional policies are listed in the Academic Information section.)

Credit Hours. Rush University is on a quarter system. Each quarter is at least ten weeks in length. Rush Medical College assigns no credit hour value to its courses. Medical students are enrolled full time even when carrying a reduced course load. Additionally, the clinical portion of the curriculum deviates from the quarter system by specifying the dates and number of weeks of full-time study spent in each area.

Credit by Examination. A student who passes a proficiency examination at Rush University will earn academic credit toward the degree. Information that is posted on the transcript is the course prefix and number, title and a K grade. A transcript guide that accompanies all transcripts issued by the Office of the Registrar explains that the K grade means credit was earned through proficiency examination.

Academic Difficulty. Students in Academic Difficulty. Course directors will, at the earliest possible time, notify the associate dean for medical student programs of the college of any students having academic difficulty. The Office of Medical Student Programs will work with such students and course directors to clarify the nature of the problem and to seek appropriate solutions. Students in academic difficulty should establish contact with the course director and appropriate member of the Office of the Dean to explore the factors relating to the student's academic difficulty.

Academic Probation. A student with significant academic deficiencies, as determined by COSEP, shall be considered on academic probation. Students placed on academic probation are thereby informed that there is serious concern about their academic performance and that they are subject to dismissal from the college should their unsatisfactory academic performance continue. Students shall be notified in writing why they have been placed on probation and what

requirements must be met to be removed from probationary status. Students on probation may not register and receive credit toward the M.D. degree for courses (including clerkships) at other institutions without the consent of the Office of the Dean.

Automatic Probation. A student who has outstanding failures in courses scheduled for a total of 90 or more contact hours, who has a failure in a single required clerkship, or who does not pass the National Board of Medical Examiners Part I Examination by November of the third year shall automatically be placed on academic probation.

Probation by COSEP. COSEP may place on academic probation any medical student who demonstrates deficiencies that COSEP, in the reasonable exercise of its discretion, determines to be significant.

Removal from Probation. A student shall remain on academic probation until he/she has made up all academic deficiencies and has met any other requirements established by COSEP for removal from probation.

Changes in Student Status. Scheduling First-Year Studies Over Two Years. Prior to the start of the spring quarter of the first year, a student may petition COSEP for permission to complete the requirements of the first year over a two-year period. A proposed schedule of courses, developed in consultation with a member of the Office of Medical Student Programs, will be presented to COSEP as part of the student's petition. COSEP shall decide upon such petition and advise the student in writing of its decision.

Leave of Absence. The associate dean for medical student programs will decide upon each request for a leave of absence and will determine the duration of the leave and the conditions, if any, for resuming status as a full- or part-time student. A student may not go on a leave of absence without first stating in writing to the dean his/her intent to return to the college to complete the requirements for the M.D. degree.

The dean will consult with COSEP insofar as possible before approving a leave of absence for a student with academic deficiencies. (See Academic Information section for an additional requirement.)

Withdrawal from the University. Withdrawal is the voluntary termination of enrollment by a student. A student who withdraws and subsequently seeks reinstatement must submit a written petition for reinstatement to the Committee on Admissions of the college, if withdrawal took place before the completion of the student's first quarter of enrollment. If the

student withdrew subsequent to the first quarter of enrollment, the student must submit a written petition for reinstatement to COSEP.

A student who fails to register and enroll in courses according to the policies of the college will be considered to have withdrawn. A student withdrawing under this provision may submit a written petition for reinstatement to the dean. The dean shall determine whether special circumstances existed which justified the student's failure to register or whether the student's petition should be forwarded to the appropriate faculty committee as set forth in the above paragraph. (See Academic Information section for additional requirement.)

Suspension. Suspension is the administrative termination of the enrollment of a student for a specific period of time.

Dismissal. Dismissal is permanent administrative termination of the enrollment of a student.

Grounds for Dismissal. The following shall constitute grounds for academic dismissal from the college:

- outstanding failures, in any combination, in the first or second years in courses whose total of scheduled instructional hours equals or is greater than 35 percent of the total scheduled instructional hours for the entire first or second year. (An outstanding failure is a failure which remains after a student has not passed a course's single make-up examination or which remains because the student did not qualify to take the make-up examination.)
- a second failure in a given required core clerkship
- a failure in a second required core clerkship even though one may have previously been made up
- unsatisfactory completion of a remedial program by a student on academic probation where satisfactory completion of such program was a requirement for continued enrollment
- failure after three attempts to pass the Part I Examination of the National Board of Medical Examiners shall constitute grounds for automatic dismissal from Rush Medical College
- a determination by COSEP that a student is not fit to practice medicine. Fitness for the practice of medicine includes demonstrated

ability to be a competent and effective physician and performance which reflects good moral character, a sense of responsibility, sound judgment, and the ability to master and properly apply subject matter.

Procedure for Dismissal. COSEP Action.

COSEP shall review the performance of a student in accordance with these rules and, where appropriate, may recommend the dismissal of a student. The chairman of COSEP shall notify the student who is subject to a COSEP recommendation for dismissal of COSEP's action and of the student's opportunity to meet with COSEP before it submits its recommendation to the Faculty Council. If the student fails to request a meeting with COSEP within 14 days from his/her receipt of the chairman's notice, the student shall have waived any right to such meeting. The chairman of COSEP shall determine the procedures for conducting the meeting with the student and shall in his/her sole discretion determine whether any participant in the meeting may be represented by an attorney.

After meeting with the student, if such meeting is requested in a proper and timely manner, COSEP shall submit its recommendation in writing to the Faculty Council.

Faculty Council Action. Within a reasonable time following its receipt of COSEP's recommendation, the Faculty Council shall consider the recommendation. The vice chairman of the council shall chair meetings of the council when the council is considering recommendations for the dismissal of a student and shall invite the student and the student's faculty advisor to attend the Faculty Council meeting during its consideration of the COSEP recommendation affecting the student. The Faculty Council may in its sole discretion conduct a part of its deliberations concerning such recommendation outside the presence of the student and his/her advisor. The vice chairman of the Faculty Council shall determine the procedures for conducting its meeting with the student and shall in his/her sole discretion determine whether any participant in the meeting may be represented by an attorney. The Faculty Council shall submit its written recommendation together with COSEP's recommendation to the dean.

Dean's Action. The dean shall consider the recommendations of COSEP and the Faculty Council and shall make the final determination concerning the affected student's status in the college. The dean shall notify the student,

COSEP and the Faculty Council of his decision in the matter.

Examinations in a Course. The attainment of course goals by students should be evaluated by written examinations and/or other appropriate means. The course director will determine the number and format of examinations. Courses with more than 50 hours of scheduled instruction per quarter should include more than one examination or other evaluative exercise per quarter.

Course Grades. All preclinical courses use a uniform minimum pass level: a score of 70 percent or 1.5 standard deviations below the class mean, whichever is lower. A grade of "honors" may be given at the discretion of the course director to students whose performance falls within the top 15 percent of the class.

Examination Period. In the medical college, no classes are scheduled during the examination period; examinations in preclinical courses are scheduled by the assistant dean for preclinical curriculum.

Incomplete Grades. The grade of incomplete (I) is normally given only when circumstances beyond the control of the student prevent completion of course requirements and the student has received permission to defer completion of these unmet course requirements. The course director shall determine what work will be required to remove the incomplete and shall establish a specific time within which the student must complete such work. Upon completion of the unmet course requirements this grade will be replaced by the new grade.

In-Course Make-up Examinations.

Excused Absences. Students with valid reasons may request permission from the dean's office to reschedule an examination. The decision to grant such permission will be made by the dean's office in consultation with the course director.

Unexcused Absences. A course director is not obligated to provide a make-up examination for an unexcused absence from an examination.

Make-up Examinations for Failed Regular Curriculum Courses in First and Second Years. A student receiving a failing grade at the completion of a course shall be given an opportunity to take a single make-up examination as a means of demonstrating his/her proficiency in the subject to rectify his/her failure. However, a student who fails a course with a

score more than two standard deviations below the class mean will not be offered such a make-up examination. Further, a student may take make-up examinations in no more than two courses in any one quarter. If more than two courses are failed, the student, in consultation with his/her academic advisor, may choose which examinations to take. Make-up exams will be completed no later than the first week of the quarter following a course failure. Format, content and passing grade for make-up exams will be determined by the course director. Make-up examinations will be scheduled by the dean's office in consultation with the appropriate course directors.

Status of Students with Course Failures.

COSEP shall review the status of students who fail make-up examinations or who have outstanding course failures for which they did not qualify to take make-up examinations and shall consider options for remedial work.

At appropriate times during the academic year, as determined by the chairman of COSEP in consultation with the associate dean for medical student programs, COSEP will review the progress of each student who has failed a course. After such review, COSEP either shall establish requirements which a student must meet in order to resolve his/her deficiencies in academic performance or shall recommend dismissal.

No student shall be promoted from the second year to the third year until he/she satisfactorily completes all requirements of the first and second years. COSEP, in its discretion, may schedule second-year courses concurrently with make-up work for unsatisfactory first-year work, as it may consider appropriate for an individual student.

Remedial Programs for Students Failing Courses.

First and Second Years. COSEP shall establish requirements for remedial work for students with one or more outstanding course failures in the first or second year. Remedial work requirements shall be reasonably related to the seriousness of the student's deficiencies. Such requirements may include, but need not be limited to the following: summer tutorial study with reexamination; participation in an approved summer course; retaking failed courses during the next academic year, and retaking all courses including those satisfactorily passed.

In developing requirements, COSEP will consider the needs of the individual student and will endeavor to develop a program that, if successfully completed, will strengthen the student's prospects for successfully completing

the remainder of his/her college program. Students who have no outstanding failures at the end of an academic year but who have had to take make-up examinations in courses whose total of scheduled instructional hours equals or exceeds 30 percent of the complete program of instruction for that entire academic year may be placed on academic probation, in which situation COSEP will establish the requirements which students must meet before they are able to proceed to the studies of the next academic year.

Third and Fourth Years: A failure in a required core clerkship must be made up in a manner prescribed by the course director consistent with the reasons for the student's failure. Should a student be required to repeat all or part of the clinical rotation, effort should be made to have the student work with different supervisory and instructional staff. A student required to repeat clinical work in a required core clerkship should complete the failed course prior to beginning another core rotation. A student failing an elective clerkship must either repeat the elective or, with the approval of the dean's office, complete an alternative elective.

Failure to Pass Part I of National Board of Medical Examiners. All students must take Part I of the NBME in June at the completion of their second year. Permission to defer taking this examination must be granted by the dean's office. Students who do not pass NBME Part I by November of their third year will be placed on probation and reviewed by COSEP. COSEP may require the student to defer part or all of his/her clinical program to provide sufficient time for preparation. Students who fail the examination three times will be dismissed automatically.

Graduation Requirements. The following are prerequisites to the granting of the degree of doctor of medicine by Rush University.

- The level of achievement required by the faculty for the degree of doctor of medicine must be attained in a minimum of 35 months.
- Credit toward the M.D. degree may be granted to a student by the Office of the Dean for appropriate course work accomplished prior to matriculation at Rush Medical College.
- A minimum of 78 weeks of instruction at Rush Medical College is required for students entering at the third-year level

from other medical schools. The Committee on Student Evaluation and Promotion may recommend additional quarters depending upon the progress made by the student following admission.

- Each student's progress in each year of the Rush Medical College curriculum will be evaluated by the Committee on Student Evaluation and Promotion, and additional study may be required in any year for students with academic difficulty.
- Students must pass all courses in the preclinical years before entering the clinical phase of the curriculum.
- Prior to graduation, students are required to pass Part I and complete Part II of the examinations offered by the National Board of Medical Examiners.
- Students must pass all required clerkships and Part I of the examinations of the National Board of Medical Examiners before the date of commencement in order to participate in commencement ceremonies.

Policies Concerning Student Misconduct

The Committee on Student Judiciary Review is charged with investigating and adjudicating charges of student misconduct of a nonacademic nature, including but not limited to: violations of commonly accepted ethical standards of an academic community, such as cheating and plagiarism; falsification of student records, transcripts, financial aid forms or applications; unlawful use or possession of controlled substances on the Medical Center campus; conviction of a crime deemed serious enough to render the student unfit to pursue his/her profession, or other conduct that is inconsistent with generally accepted standards of behavior within an academic community or the medical profession.

All charges of student misconduct of a nonacademic nature shall be presented to the associate dean for medical student programs. Such requests will be entertained from members of the Rush Medical College faculty and/or student body. If, in the opinion of the associate dean, the matter may be resolved without a hearing, an attempt may be made to do so.

The student charged with misconduct or the associate dean may at any time exercise the right to have the charges heard by the Committee on Student Judiciary Review. In

every case, the associate dean will notify the complainant in writing, by registered letter within 30 days of receiving the complaint, as to whether the matter was resolved without a hearing, or whether the matter was referred to the Committee on Student Judiciary Review. If a disposition requires more than 30 days, the associate dean will notify the complainant in writing every 30 days until the matter has reached a disposition.

If the complainant is dissatisfied with the resolution of a matter that has not been referred to the Committee on Student Judiciary Review for a hearing, he/she may request that the decision be reviewed by an ad hoc committee consisting of two faculty members and one student appointed by the dean. In order for a complainant to initiate a review of the associate dean's decision, the complainant must notify the associate dean in writing that he/she seeks a review, and the notification must reach the associate dean within 15 working days from the time the complainant received written notification of the associate dean's disposition.

Upon a timely request, the dean will constitute the Ad Hoc Committee within two weeks. Members of the Ad Hoc committee may not simultaneously serve as members of the Committee on Student Judiciary Review. The Ad Hoc committee will convene to accept testimony (in person or in writing) from the complainant, the student charged, and the associate dean. The Ad Hoc Committee will only accept evidence that addresses the issue of whether the associate dean failed to consider certain relevant facts that would warrant a full hearing. In the case of such a review, the Ad Hoc Committee may reach one of two decisions by a simple majority vote: 1) endorsement of the associate dean's prior disposition of the matter or 2) a decision ordering that the Committee on Student Judiciary Review hear the matter in a full hearing.

The decision of the committee shall be in writing, shall contain a summary of the evidence and testimony upon which the decision is based, and shall be delivered to the student, the senior representative body of the college, and the dean. The senior representative body shall consider the committee's determination and any written exceptions to said determination submitted by the student, and shall render its recommendation adopting, rejecting or modifying, in whole or in part, the committee's conclusion. Copies of the senior representative body's recommendation shall be transmitted to the Committee on Student

Judiciary Review, the student and the dean. The dean will then consider the matter and render a final, nonappealable decision with respect to the charges of misconduct.

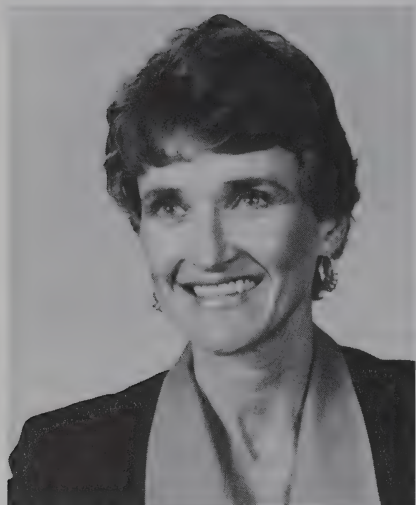
A copy of the complete Policies and Procedures of the Committee on Student Judiciary Review, including the rules for the conduct of hearings, is available from either the associate dean for medical student programs or the chairman of the committee.

Academic Advisor Program

The Academic Advisor Program consists of eight specially selected and trained faculty members for each class who provide systematic counseling and guidance for cohorts of approximately 15 students each throughout the four years of medical school. The advisors are kept informed of current policies, procedures and trends affecting student participation in both curricular and noncurricular aspects of medical school by the assistant dean for academic counseling, who is responsible for program planning, coordination, and evaluation. Advisors provide counseling in three interrelated areas: academic (regarding the acquisition of the knowledge and skills for becoming a competent physician), personal (regarding the growth and development of the person), and professional (regarding the selection of a career and graduate training program for which the individual is best suited). Besides assisting each of their advisees through the various stages of medical school, the advisors are directly involved in writing the dean's letter, which is the summation of the student's progress while at Rush used in applying to graduate medical education (residency training) programs.

Student Research Opportunities

Students are encouraged to have some research experience while they are in medical school. The opportunities range from laboratory experiences in the biomedical sciences to clinical investigation and field work in epidemiology, preventive medicine, and primary care. Such research can be carried out during summers or during time allotted for elective experiences. The student's academic advisor and the Office of Medical Student Programs will assist in arranging for research experiences.



"At Rush-Presbyterian-St. Luke's Medical Center nursing sets a national standard for excellence in patient care. This is accomplished through the unique integration of academic functions and health care services resulting in innovative nursing care delivery systems, nationally recognized educational programs culminating in the preparation of clinical nursing scholars in specialized care disciplines, and research programs that contribute to the scientific basis of clinical and administrative practice in nursing."

*Kathleen G. Andreoli, D.S.N.,
The John L. and Helen Kellogg Dean,
College of Nursing
Vice President, Nursing Affairs*



COLLEGE OF NURSING

Undergraduate Nursing Programs

Philosophy

The faculty of the College of Nursing embraces Rush University's commitment to freedom of inquiry, excellence in scholarship and service, and innovative leadership in the delivery of health care. This belief is reflected in standards developed through research endeavors, organizational design to help guide practitioners to conceptualize health care practice based on present and future needs of society and in the structure to integrate nursing practice, nursing education and nursing research.

Nursing and other health disciplines at Rush University are approached as applied sciences with all the scientific rigor implied by this concept. The ability to work harmoniously and productively with members of the various health professions and to contribute constructively toward change in the provision of health services to society are integral components of each college's philosophy. The entire Rush enterprise shares a common belief that the University is designed to offer students the opportunity to achieve both breadth and depth in preparation for their careers in the health professions.

The Rush philosophy is that nursing, as an applied science, builds on and expands concepts, theories and models from related disciplines. Nursing is also an emerging scientific discipline with its science base evolving from the application and investigation of concepts and theories in the clinical practice of nursing. The developing scientific base and the expanding legal role of nurses require an increased level of individual and group accountability for the quality of services rendered.

Nursing at Rush is based on the belief that each individual is part of the human family with a potential for growth. Human development as a continuous process occurs within the context of interacting biological, social and environmental systems. The degree of health or illness is determined by the responses of individuals, groups and communities to these influences during the life process.

The faculty of the College of Nursing supports the view that the learner is an individual with a highly specific sociocultural background, diverse life experiences and varied interests and values. Faculty members provide students with a

learning environment that enhances individual potential by encouraging inquiry and self-directed independent learning.

At the undergraduate level, the liberal arts education serves to broaden perspectives in relation to man in society and a humanistic approach to nursing care, and to foster an esthetic value for self-fulfillment. The biological and behavioral sciences offer a foundation for understanding the nursing process and for applying theory to practice. The professional education component, based on scientific principles, provides knowledge, promotes skills and encourages the development of attitudes essential to the functioning of the professional nurse as a generalist. All of these elements in the philosophy of the College of Nursing create a climate of learning for students to grow and develop as competent and professional nurses.

Terminal Objectives

The objectives of the undergraduate program in nursing are to provide educational experiences that will enable the student to do the following:

- synthesize basic principles and concepts from the biological and behavioral sciences and apply that knowledge to clinical practice
- identify theories applicable to clinical practice
- function as a generalist nursing practitioner
- appropriately determine the need for and utilize a consultant for clinical problem solving
- apply principles of problem solving to assess, plan, implement and evaluate preventive, therapeutic and rehabilitative health care for individuals, families and communities throughout the lifecycle
- apply basic concepts and principles of learning and teaching with clients and peers
- utilize basic concepts of leadership and management, including knowledge of internal and external organizational influences on nursing practice

- function collaboratively with other members of the health care team to provide continuity of care
- apply research findings in clinical practice
- identify areas for continued research
- demonstrate commitment and accountability to health care consumers and to professional standards
- engage in activities that promote individual professional development

Admission

Students enter Rush at the junior level after completing the two-year prehealth curriculum at another accredited college or university. There are two options for admission. An individual may attend either an accredited institution of his/her choice or one of 16 colleges and universities affiliated with Rush. Although students from affiliated schools have priority in admission, these students comprise only approximately 25 percent of the entering class. All other spaces are filled by applicants from nonaffiliated institutions.

Students interested in attending an affiliated school are encouraged to submit applications to the affiliated colleges and universities soon after the beginning of their senior year in high school. Each college has its own entrance requirements. The student's academic progress will be monitored by both Rush and the health careers advisor on the affiliated college campus. Students meeting the objectives of the prehealth curriculum, obtaining the approval of the health careers advisor and filing all required documents, will move to Rush University to pursue the final two years of the program.

Prehealth Curriculum

Course	Quarter Hours	Semester Hours
Chemistry, Inorganic	5-6	4
Chemistry, Organic	5-6	4
Human Anatomy and Physiology	10-12	8
Microbiology	5-6	4
Statistics, Introductory	4	3
Growth and Development	4-5	3
Behavioral Sciences	13-14	9
Academic Electives	43-38	25
TOTAL	90	60

Required prehealth courses must be taken for a letter grade rather than pass/fail. Additionally, no transfer credit is awarded for required course work in which the student earned less than a C grade. The Test of English as a Foreign Language (TOEFL) is required of all applicants whose native language is not English. Finally, all candidates for admission must provide evidence of good physical and mental health.

For further information, contact the Office of College Admissions Services at (312) 942-7100.

R.N. Completion. Rush University is committed to continuing education and to the facilitation of study in baccalaureate and graduate programs. R.N. applicants must complete all of the prehealth curricular requirements as outlined. Rush grants no transfer credit for lower division nursing courses but allows students to write examinations to earn upper division nursing credit following admission. For the upper division program at Rush, individual curricular plans are formulated for each R.N. Interested registered nurses should contact the Office of College Admissions Services (telephone 312-942-7100) for information and referral to an advisor.

Required courses. If hour designations are different from those indicated, students should submit a course content description. (Human anatomy and physiology courses taken more than five years prior to the date of expected matriculation will not be applicable for meeting prehealth requirements. Chemistry and microbiology courses taken more than seven years prior to expected matriculation will not apply to meeting prehealth requirements.) Guidance in course selection is available through the admissions office at Rush.

Curriculum

At the College of Nursing, the program leading to the bachelor of science degree with a major in nursing requires successful completion of the prehealth curriculum and upper division study at Rush University.

Upon completion of the four-year program and receipt of the bachelor of science degree with a major in nursing, the graduate is eligible to take the licensure examination to become a registered professional nurse.

The goals of the program are to provide the professional nurse with the knowledge base and intellectual flexibility needed to offer nursing care in a variety of current and emerging health care delivery systems and to interact with the individual, the family, the community, and other health professionals.

The development of nursing as an applied science begins with a foundation in the basic liberal arts and sciences to provide a base for the upper division nursing curriculum at the Rush campus. The basic behavioral and biological sciences taken the first two or three years at other schools are translated during the last two years into nursing practice in the psychomotor skills laboratory, classrooms, seminars, and clinical experiences.

A team effort, involving basic scientists, nurse-scientists, practitioner/teachers, and the student, guides the application of current nursing knowledge and utilizes the freshest directions for change and the newest research findings. Throughout the curriculum the student is expected to become more and more self-directed and to concentrate on specific career goals through the selection of academic and clinical electives. Electives in the humanities are an integral part of the curriculum and complement the scientific and technical competencies required for professional practice.

The lifetime continuum of learning for nursing practice is acknowledged at Rush and enhanced by the availability of self-study resources and advanced studies in clinical nursing and research.

Prehealth Curriculum. The prehealth portion of the undergraduate program requires two or three years of study, depending upon the college. These years are devoted to preparing the scientific foundation upon which the practice of nursing can be built. Courses in biological, physical and behavioral sciences are required with options in the humanities.

Specific course offerings and requirements may vary from campus to campus due to curricular offerings, scheduling and course content. The prehealth curriculum printed in the Admission section suggests the kinds of courses that are normally required before a student comes to the Rush campus.

Upper Division Curriculum. The upper division curriculum consists, each quarter, of a set of correlated required courses that function much as one course. A required, advanced course in either the biological or the behavioral sciences provides the core concepts for the set of courses

Clinical nursing faculty presents related nursing concepts in the required seminar/practicum that accompanies the advanced course. In the practicum, students spend 9 to 24 hours weekly in clinical experiences planned to provide an opportunity for the

Curriculum: Baccalaureate Nursing

Third Year	Fall Quarter	Quarter Hours
NSG 301	Foundations of Nursing	4
NSG 311	Nursing Application I	7.5
PHR 303	Nursing Pharmacology I	2
		<hr/> 13.5
Winter Quarter		
BIO 301	Advanced Biological Sciences I	4
NSG 312	Nursing Application II	8
PHR 304	Nursing Pharmacology II	2
		<hr/> 14
Spring Quarter		
BIO 302	Advanced Biological Sciences II	4
NSG 312	Nursing Application III	8.5
		<hr/> 12.5
Fourth Year	Fall Quarter	Quarter Hours
BHV 402	Advanced Behavioral Sciences I	4
NSG 311	Nursing Application IV	9
NSG 382	Nursing Pharmacology I	2
		<hr/> 15
Winter Quarter		
BIO 301	Advanced Behavioral Sciences II	4
NSG 412	Nursing Application II	9
		<hr/> 14
Spring Quarter		
NSG 401	Patient Care Management	3
NSG 413	Nursing Application II	11
		<hr/> 14
	Total Required Hours	82
	Electives	8
	Prehealth Curriculum	90
	MINIMUM REQUIRED FOR GRADUATION	<hr/> 180

practical application of nursing principles. Part of this clinical time is spent learning basic nursing skills and techniques related to the seminar content in specially equipped psychomotor skills laboratories. Teaching of these skills is provided by both practitioner/teachers and laboratory personnel in order to ensure competent, safe patient care. When competency is gained, the skills are applied in a clinical setting.

The scheme is followed for six quarters, with

each nursing course assuming that students will achieve a progressively higher level of understanding and skill. Since courses may be offered only once each year, unsatisfactory performance will result in a year's delay in progress. Hence, progression is contingent upon successful completion of each quarter in sequence. Each nursing student will be assigned to clinical experience in the areas of medical, psychiatric, community, obstetrical, surgical and pediatric nursing. Gerontological nursing experiences are integrated into appropriate clinical practica. During the community experience, students make home visits in surrounding neighborhoods. Clinical assignments and conferences aid students in learning the special care requirements of patients in each nursing area. Arrangements have been made with other agencies and institutions in the Chicago area so that students will have outstanding clinical training in a variety of care settings. Students may spend clinical time at Rush affiliated hospitals and other institutions throughout the city. Transportation expenses will be the responsibility of the student.

Advanced Placement. Any student who has completed the prehealth curriculum and has been accepted by the college may take the Advanced Placement (AP) Examination for the following advanced sciences courses:

Advanced Biological Sciences I
Advanced Biological Sciences II
Advanced Behavioral Sciences I
Advanced Behavioral Sciences II
Nursing Pharmacology I
Nursing Pharmacology II
Introduction to Nursing Research

These examinations test material that is included in the upper division core courses taken at Rush. Content tested reflects information beyond that usually covered in required prehealth courses.

Students successful in the Advanced Placement Examination earn academic credit toward the degree, but this will not necessarily reduce the time required for graduation. The credit will equal the credit value of the course as listed in the current *Rush University Bulletin*. Information that is posted on the transcript is the course prefix and number, title, credit value and a K grade. A transcript guide that accompanies all transcripts issued by the Office of the Registrar explains that the K grade means credit was earned through proficiency examination. Credit for the course will appear in the quarterly and cumulative totals as credit earned. The

credit is not calculated into the student's grade point average (GPA).

In addition, registered nurses who have passed the advanced science course examination are eligible to take the AP examination in the respective nursing science course. For example, examination in BIO 301 (Advanced Biological Sciences I); then, if successful, examination in NSG 312 (Nursing Application II). The same sequential testing format will be followed for each quarter of work challenged. A candidate successful in these two examinations will receive credit for up to eight quarter hours. Credit for up to 45 quarter hours may be granted in this manner. In order to receive the bachelor of science degree a minimum of 45 quarter hours of credit must be earned in academic residence at Rush University.

A clinical AP examination is offered each summer. Success on this examination exempts the R.N. student from the clinical practica associated with several courses.

For registered nurses who enroll in junior level clinical practica, psychomotor skills placement examinations are available. Students interested in taking the Advanced Placement Examination should contact the director of the undergraduate program for a schedule of dates and fees.

Full-time and Part-time Enrollment.

Undergraduate students must plan on full-time course work. Registration for 12 quarter hours or more constitutes full-time enrollment. The only exceptions are registered nurses and students who have received credit by examination for some of the required courses. Following are guidelines which will help in planning a part-time program.

- NSG 301 and NSG 311 are prerequisite to all other required nursing courses.
- BIO 301 is a prerequisite of BIO 302.
- NSG 312 is a prerequisite of NSG 313.
- BHV 402 is a prerequisite of BHV 403.
- NSG 411 is a prerequisite of NSG 412.
- All other core nursing courses must be completed prior to enrollment in NSG 401.
- NSG 413 is not available for advanced placement examination and requires 24 hours per week of clinical experience.

Academic Policies

(Additional policies are listed in the Academic Information section.)

Academic Progression. The faculty reserves the right to request the withdrawal of any student whose conduct, physical or mental health or performance demonstrates lack of fitness for continuance in a health profession. Any such student not voluntarily withdrawing will be dismissed from the University.

Since much of the work in nursing assumes that students will achieve a progressively higher level of understanding and skill, high academic performance is expected. The individual student is responsible for acquiring knowledge inside and outside of formal classroom and clinical settings.

Undergraduate students will be considered in good standing at Rush University unless placed on academic probation. Academic probation is assigned to any student who receives a quarterly GPA below 2.0 (A=4.0) or whose cumulative GPA falls below 2.0. In addition, a cumulative GPA will be calculated for the following core and nursing application seminar (NAS) sequences of courses every quarter:

- core--NSG 301, 401, 382; BIO 301, 302; BHV 402, 403; PHR 303, 304.
- NAS--NSG 311, 312, 313, 411, 412, 413.

Any student whose cumulative GPA falls below 2.0 in either of these sequences will be placed on academic probation. Students placed on probation must show improvement in academic standing in the quarter immediately following the quarter in which they were placed on academic probation. Academic probation is limited to a maximum of two quarters during the entire undergraduate program. Failure to demonstrate improvement in academic progress immediately after being placed on probation will result in dismissal from the University. Improvement in academic standing is defined as earning a minimum grade of C in all courses taken.

In order to be removed from probation, it is necessary to achieve and maintain a 2.0 GPA in the quarterly and cumulative averages and in the core and NAS sequences. Academic probation that extends longer than two quarters will result in dismissal from the University.

Undergraduate nursing students may not remain in the program if they receive a grade of F or N in any of the following courses: BHV 402, 403; BIO 301, 302; NSG 301, 311, 312, 313, 382, 401, 411, 412, 413 and PHR 303, 304.

Repeating Courses. A course in which a grade of D is earned may be repeated only once. The hour and grade points of the second grade

only will be counted in the cumulative grade point average.

Credit Hours. Rush University is on a quarter system. Each quarter is at least ten weeks in length. An examination period is provided at the end of each term, and most classes give a final examination during this time.

The quarter hour is the unit used by the College of Nursing, the College of Health Sciences and The Graduate College to determine credit for courses taken. As a general rule one quarter hour represents one lecture hour, one hour of small group discussion, or three laboratory or clinical hours per week.

Transfer of Credit. Undergraduate courses taken at an accredited college or university that fulfill the prerequisites for admission may be applied toward the baccalaureate degree. Elective credit required at Rush may be fulfilled by upper division courses taken at another institution. Upper division courses must be at the 300 or 400 level, or its equivalent, and academic in nature. For instance, courses in physical education or applied arts are not accepted. A transfer credit approval form should be completed.

Undergraduate Enrollment in Graduate Courses. With permission, undergraduate students may register for graduate level courses. Any credit earned in this manner will automatically apply toward the baccalaureate degree. Should any undergraduate student later apply for, and gain admission to, a graduate program at Rush University, the student may request that the graduate credit earned be applied toward the master's degree. A transfer credit approval form should be completed.

Credit will transfer in this manner only if the student has enough cumulative credits. A student must earn a minimum of 180 quarter hours to receive the bachelor of science degree. If a student actually earned 187 quarter hours, and seven quarter hours are at the graduate level at Rush, seven quarter hours could potentially be credited toward the master's degree.

Incomplete Grades. The grade of incomplete (I) is normally given only when circumstances beyond the control of the student prevent completion of course requirements and the student has received permission to defer completion of these unmet course requirements. The course director shall determine what work will be required to remove the incomplete and shall establish a specific time within which the student must complete such work.

An incomplete grade does not reflect upon the



quality of the student's performance, and upon completion of the unmet course requirements this grade will be replaced by the new grade.

Students must contract with the instructor in order to receive an incomplete grade. Students receiving a grade of I are responsible for finding out from the instructor the exact work required to remove the incomplete. Course work shall be completed by the end of the next quarter the student is enrolled, or sooner, at the discretion of the instructor and course director. An incomplete grade not removed by the end of the quarter will revert to a failing (F or N) grade unless otherwise negotiated by the instructor and student.

Absences. Students are responsible for all material presented in class sessions. Faculty will not be available to students who miss or are late for classes. Students are expected to be in attendance at all seminar and clinical practice periods and are responsible for all content presented therein. When illness or other special circumstances prevent attendance, the student is responsible for contacting the instructor (in advance, if possible) to plan for meeting the objectives on an individual basis. Students absent from an examination are responsible for notifying the course director according to the guidelines specified in the course syllabus. Failure to do so will result in a zero for that examination or an incomplete for the course as determined by the course director.

Examination Policy. The examination policy is the responsibility of the individual course director who will inform students of examination requirements for that particular course. A period at the end of the quarter is provided for examinations. This period may be used as the course director chooses.

Dean's List. Undergraduate students earning a 3.5 or higher GPA for at least 12 credits of classroom course work are given recognition by having their names placed on the Dean's List. The Dean's List is published at the beginning of each new quarter for work completed in the previous quarter.

Leave of Absence. A student who must interrupt his/her studies for reasons of sustained ill health or a compelling personal situation may apply for a leave of absence for a stated period of time, usually not to exceed one year. Leave of absence requests must be submitted in writing to the admissions and progression committee. Nursing students must be in good academic standing to be considered for approval. If approved by the committee and the director of the undergraduate program, the student must satisfy the conditions of the leave before reentering and must comply with all policies, requirements, and course sequences in effect at the time of reentry. At least three months in advance of reenrollment, the student shall notify, in writing, the administrator(s) who granted the leave of his/her intent to return. (See Academic Information section for an additional requirement.)

Readmission. Any student who has withdrawn from a program or has not been enrolled for two consecutive quarters or any dismissed student may apply for readmission by submitting an application for this purpose to the Office of College Admissions Services. An application for reenrollment must be received at least three months before the planned return. An applicant for readmission must have an interview with a member of the admissions and progression committee. A reentering student must meet the conditions for reenrollment stated in his/her dismissal or reentry acceptance letter and all policies, requirements and course sequences in effect at the time of reentry. The student will pay tuition and fees at the rates in effect at the time of reenrollment.

A nursing student who received a failing grade in a course which resulted in dismissal must repeat the course upon reinstatement. The hour and grade points of the second grade only will be counted in the cumulative GPA, although both

grades will appear on the transcript.

Graduation Requirements. The bachelor of science degree with a major in nursing requires a minimum of 180 quarter hours. At least 90 quarter hours are used to fulfill the prehealth curriculum. The remaining 90 quarter hours constitute the upper division curriculum of which at least eight quarter hours must be upper division electives.

A minimum of 45 quarter hours shall be spent as an upper division student in academic residence at Rush University. Credit earned through proficiency examination may not be used to meet this requirement.

Candidates for the B.S. degree must earn a 2.0 cumulative GPA in NSG 311, 312, 313, 411, 412 and 413. Candidates must also earn at least

a 2.0 cumulative GPA in NSG 301, 401, 382; BIO 301, 302; BHV 402, 403 and PHR 303, 304. Finally, a 2.0 cumulative GPA must be earned in all computed upper division credits taken at Rush University.

During the fourth year, all students are expected to participate in comprehensive examinations which assist faculty in counseling students for licensure examination and are used for program evaluation. However, no minimum score is required.

Participation at commencement is expected of all graduates.

After receiving the baccalaureate degree, graduates are eligible to write the National Council Licensure Examination for Registered Nurses.



Graduate Nursing Programs

Philosophy

Graduate nursing education at Rush University is based on the belief that nursing is an applied science that focuses on the human life cycle and interacting systems in the environment. The master's program prepares the nurse for practice as a nurse clinical specialist or nurse practitioner and provides the basis for continued graduate study. The doctoral program prepares the nurse for leadership in the profession.

A significant concept underlying the graduate curriculum is the view that human development is a dynamic, continuous process that occurs within a health-illness continuum. The nurse in advanced practice must be cognizant of the dynamic interrelationships among biological, psychological, sociological, and environmental systems which influence perceptions of and responses to physiological and psychosocial health problems. Advances in clinical practice must be based on knowledge and understanding of the biological and behavioral sciences. Therefore, the curriculum includes courses in the behavioral and biological sciences, physical assessment, health systems, and clinical investigation, in addition to the clinical courses. The clinical seminar and practicum, as well as independent study, focus on the student's specialization and provide the theoretical and clinical bases for practice as a clinical nurse specialist.

Graduate education provides for the development of intellectual inquisitiveness, analytical thinking, critical judgment, and a high degree of professional responsibility and accountability. Doctoral study affords the student the opportunity to combine cognate studies, field studies, research, and clinical practice to advance the body of knowledge in nursing, to make informed judgments, and to take appropriate action for managing clinical problems, for developing health care policies, and for changing health care systems.

Educational Programs

The first phase of graduate study is clinical specialization (the master's level) with intensive study and examination of the biological, behavioral, and organizational sciences as they are applied within the context of nursing practice,

administration, education, and research. The clinical specialist has a broad understanding of the dynamic interrelationships among psychological, physiological, sociological, and environmental systems which influence perceptions of and responses to health problems and advances to clinical nursing practice. Successful completion of the requirements for the master's degree prepares the graduate to function as a clinical nurse specialist or nurse practitioner with beginning competence in the complementary areas of teaching, management, research, and consultation.

In the second phase of graduate study (the doctoral level) the student examines further the substantive areas of a clinical specialty and the current theories relevant to nursing practice, integrates knowledge from the behavioral and biological sciences, and develops research competence. The nurse who successfully completes the requirements for the doctor of nursing science degree (D.N.Sc.) can expand the general theoretical body of nursing knowledge and its applications to diverse and changing nursing problems. A graduate of the D.N.Sc. program will have developed the competencies of an expert clinician, the investigative skills of a nurse researcher, and the leadership skills needed to influence health care systems and develop health policy.

Objectives

The master's level of the curriculum is designed to prepare graduates to function as clinical nurse specialists or nurse practitioners. These roles require the central focus on clinical practice with a beginning level of knowledge and skill in education, research, administration, and consultation. Upon completion of the M.S. program, the student will be able to do the following:

- synthesize advanced concepts and principles from the biological and behavioral sciences and apply that knowledge to clinical practice
- analyze theories in relation to clinical practice and to the larger scientific community

- function as a nurse clinical specialist or nurse practitioner in the specialty area of study
- provide clinical consultation in the specialty area of practice
- integrate a complementary role of teacher and/or manager with clinical practice
- utilize concepts and principles of learning and teaching with clients, peers and/or students
- analyze the nursing component of health care systems within the context of interacting social, economic, and political systems
- participate in the change process of health care systems, incorporating knowledge of social and political forces
- analyze, evaluate and apply research findings in the selected field of clinical practice
- explore areas for continued research
- provide leadership in the development of professional standards for clinical practice
- participate in activities that promote development of the profession

In addition to meeting the objectives of the master's level of graduate study, the graduate of the D.N.Sc. program will be able to do the following:

- test and/or generate concepts and principles from the biological and behavioral sciences for application to clinical practice
- select from a wide range of theory to identify and analyze clinical problems and justify the application of intervention options
- function as a clinical nursing scientist
- provide consultation for the resolution of issues and problems in clinical practice
- test and/or generate concepts and principles to advance clinical nursing practice
- evaluate the application of concepts and principles of learning and teaching within clinical practice, education, and management
- plan, implement, and evaluate changes in health care systems commensurate with current knowledge and future health needs of society
- design, conduct, direct and report clinical research studies
- provide leadership essential to the advancement of nursing practice and nursing science

Admission Requirements

Each applicant to the graduate nursing program should have earned a baccalaureate degree in nursing from a National League for Nursing (NLN) accredited program. All work toward the baccalaureate degree must be at the university level, and the applicant must have completed an upper division major. Graduates from other than NLN-accredited programs and graduates who have earned a baccalaureate degree in a field other than nursing, who fulfill all other requirements for admission, must arrange to take the NLN examinations by contacting the Office of College Admissions Services. These examinations assist the faculty in evaluating nursing preparation.

Both postbaccalaureate and post-master's applicants may apply to the doctoral program in nursing. The student and the advisor will plan the integrated program of study from the postbaccalaureate or post-master's level through completion of the D.N.Sc. degree. Progression requires maintaining stipulated academic standards.

Applicants to the graduate program are evaluated according to the following criteria:

- Evidence of good academic ability:
 - (1) B average or above for the final two years of college work and cumulative grade point average of 3.00 on a four point scale for undergraduate work.
 - (2) Cumulative grade point average of 3.5 for master's level study.
 - (3) Provisional status is available for a selected number of applicants with a GPA below 3.0.
- Graduate Record Examination (GRE) results
- licensure as a professional nurse in Illinois
- recommendations from three individuals who know the applicant well. One recommendation must come from a past teacher and one from the applicant's most recent employer. For applicants to the doctoral program, at least one of the

- recommendations must be from an individual who holds an earned doctorate.
- an acceptable interview(s). All applicants must interview with the coordinator of their specialty program or a designate. Applicants for doctoral study must have interviews with three doctoral faculty. The purpose of the interview is to ascertain the applicant's general knowledge of nursing, comprehension of selected field(s) of study, ability to express ideas and opinions, and the compatibility of the program for the student's expressed goals.
 - successful completion of proficiency examinations in nursing as specified by the College of Nursing (for graduates of schools other than NLN-accredited baccalaureate programs in nursing and graduates of baccalaureate programs in fields other than nursing).
 - successful completion of the Test of English as a Foreign Language (TOEFL), if English is not the applicant's native tongue
 - a passing grade in a statistics course (upper division preferred)

All materials of the application are taken into consideration when evaluating an applicant.

Applicants are not necessarily excluded from or accepted into a program because of deficiencies or proficiencies in any one area.

Each student is assigned an advisor who helps the student define a program of study at the time of admission to the graduate program. The program of study is written and signed by the student and advisor and filed in the student's permanent program record (437 Schweppe-Sprague Hall).

Curriculum

The program leading to the master of science degree with a major in nursing provides opportunities for clinical specialization or practitioner focus. The following clinical specialties in nursing are available: gerontology, home health care, medical/surgical, oncology, parent/child health psychiatry/mental health, and rehabilitation. Nurse practitioner foci include: anesthesia, community health, gerontology, neonatal and pediatric.

The master of science degree with a major in nursing requires completion of a minimum of 55 quarter hours of credit (four quarters of full-time study or 8-10 quarters of part-time study), exclusive of prerequisites. Programs preparing the nurse practitioner require an additional period of study.

Curriculum, Graduate Program

Content Category/Course	Master's Level	Doctoral Level	
BEHAVIORAL SCIENCE	6	Additional as appropriate to program of study	
BIOLOGICAL SCIENCE	6		
HEALTH CARE SYSTEMS	6		
RESEARCH			
Clinical Investigation	4	Advanced Statistics	8**
		Methods & Design	6**
		Research Seminar	3
		Research Practicum	4
NURSING			
Concepts, Theories, Models	2	Theory Development	4
Specialty Seminar/Practicum	18*	Clinical Practicum	20
Physical Assessment	4	Clinical Seminar	2
Additional Specialty Content	0-14*		
ELECTIVES	variable		variable
Thesis (optional)		Minor (optional)	18*
MINIMUM TOTAL	55*	LEVEL TOTAL	70*
* Specific courses and/or additional quarter hours are required by certain programs of study		** Minimum number of credits recommended	

Required course work encompasses concepts of health care delivery, behavioral sciences, biological sciences and clinical investigation. Seminar/practicum courses provide individual and group focus on the student's area of clinical specialization. In most of the practica, the student may choose both the practice area and the setting if faculty preceptors in the student's specialty and in the preferred setting are available. A thesis and/or additional course work in complementary areas, such as teaching, research or administration, are optional.

The clinical doctoral program leading to the Doctor of Nursing Science (D.N.Sc.) is designed to develop nursing knowledge through the integration of research in advanced clinical practice. Cognate studies, clinical practice, and research methodologies are combined to advance the body of knowledge in nursing and its application to diverse and changing health care needs. A graduate of the program will have developed competencies as an expert clinical practitioner, the investigative skills of a nurse researcher, and the leadership skills for developing health policy and changing health care systems.

Three options available for completing the doctoral program requirements:

1. Post-baccalaureate Option
2. Post-master's - Regular Option
3. Post-master's - Summer Option

The doctoral student and his/her major advisor mutually define an individual program that includes an area of clinical nursing for specialization and investigation. (Nurse midwifery is available as a specialization at the doctoral level only.) The doctoral program will enable the graduate to have the competencies of an expert clinician, the investigative skills of a nurse-researcher and the leadership skills needed for developing health care systems.

Course requirements vary from program to program. The college reserves the right to modify course requirements in consideration of overall curricular goals and design. At least 55 quarter hours of graduate credit or more, depending upon specialization, are required for the M.S. degree. At least 125 quarter hours of graduate study (postbaccalaureate), exclusive of dissertation, are required for the D.N.Sc. degree. The doctoral student choosing the midwifery specialization as a postbaccalaureate student will not be awarded a master's degree during his/her course of study.

Academic Policies

(Additional policies are listed in the Academic Information section.)

Academic Progression. The faculty reserves the right to request the withdrawal of any student whose conduct, physical or mental health, or performance demonstrates lack of fitness for continuance in a health profession. Any such student not voluntarily withdrawing will be dismissed from the University. Following matriculation as a graduate student, the student must remain enrolled each term according to the agreed upon program of study until all degree requirements are met and the degree is conferred.

Students in all graduate programs must maintain a cumulative 3.0 average in order to remain in good academic standing. A full-time student whose cumulative GPA falls below 3.0 may enroll for one quarter as a probationary student to attempt to raise his/her cumulative GPA. A part-time student is placed on academic probation status for a period of time specified by the Graduate Admissions, Progressions and Graduations Committee. Further enrollment in the graduate program will be denied if the GPA is not raised in the quarter(s) of probation.

A student must achieve an A or B grade in all required clinical nursing courses. If less than a B grade is achieved, a student may repeat the one course only with the approval of the Graduate Admissions, Progressions and Graduations Committee, the student's advisor, and the graduate program coordinator. An F grade in a required clinical nursing course will result in dismissal from the program.

For all other courses, a graduate student must achieve an A, B, C or pass grade. The Graduate Admissions, Progressions and Graduations Committee will review all grades of C or lower earned by graduate students. Progression may be denied, a student may be warned, or a student may be dismissed after receipt of one C grade. The receipt of a third C will result in dismissal from the program. If readmitted to the program, a student must repeat the course in which the third C grade was earned.

Certain required behavioral and biological science courses are taken prerequisite to or concurrent with clinical nursing courses. These courses are specific to the clinical area of study.

Nursing courses numbered 501, 511, 512, 513, 514 and 515 must be taken in sequence when these courses are part of a student's major program.



Changing Programs. Changing the major within the graduate programs requires written consent of both program coordinators and the director of the graduate program. Permission will be considered based upon available clinical preceptors. All transfers become effective at the beginning of the next academic quarter.

Part-time Enrollment. Graduate students may enroll for courses on a part-time basis. All prerequisites for a specific course must be met before admission to the course. Part-time master's students must complete degree requirements within five years (60 months). For the postbaccalaureate student the entire doctoral program must be completed within a ten-year period. For those students having an interrupted program of study (admitted or readmitted following the master's program) the requirements for the doctoral degree must be met within a 60-month period.

Graduation Requirements. The M.S. degree with a major in nursing requires a minimum of 55 quarter hours with the exception of the following clinical specialties: the anesthesia nurse practitioner program which requires 62 quarter hours and a 52-week residency; community health nursing, which requires 65 (minimum) quarter hours plus a one-quarter residency; the gerontological nurse practitioner program which requires 58 quarter hours and the neonatal nurse practitioner program which requires 61 quarter hours and a one-quarter residency.

The doctoral student and his/her academic advisor define a program of study. The program of study is written and signed by the student and the advisor and filed with the director of the graduate program by the end of the first quarter of doctoral study. In no instance may the course work be less than the equivalent of 125 quarter hours of graduate credit (postbaccalaureate) in addition to the completed dissertation.

A maximum of 20 percent of graduate level course work may be taken pass/no pass.

Credit Hours. Rush University is on a quarter system. Each quarter is at least ten weeks in length. An examination period is provided at the end of each term and most classes give a final examination during this time.

The quarter hour is the unit used by the College of Nursing, the College of Health Sciences, and The Graduate College to determine credit for courses taken. As a general rule one quarter hour represents one lecture hour, one hour of small group discussion, or three laboratory or clinical hours per week.

Transfer of Credit. Graduate credit earned elsewhere may be applied to the M.S. and D.N.Sc. degree requirements for Rush, subject to the approval of the advisor. Credit in excess of nine quarter hours requires approval of the director of the graduate program. Graduate level courses taken at a recognized college or university may be applied to the D.N.Sc. degree requirements at Rush, subject to the approval of the academic advisor. Credits in excess of 55 quarter hours require approval of the director of the graduate program. Before this credit may be approved to meet degree requirements, a transfer credit approval form must be completed. The form should be completed during the first quarter of enrollment in the degree program.

After matriculation, students who plan to request credit for courses taken elsewhere must either complete a transfer credit approval form or register for concurrent enrollment. Information regarding either of these options is available in the Office of the Registrar.

Credit by Examination. A student who passes a proficiency examination at Rush University will earn academic credit toward the degree. The credit will equal the credit value of the course as listed in the current *Rush University Bulletin*. Information that is posted on the transcript is the course prefix and number, title, credit value, and a K grade. A transcript guide that accompanies all transcripts issued by the Office of the Registrar explains that the K grade means credit was earned through proficiency examination.

Credit for the course will appear in the quarterly and cumulative totals as credit earned. The credit is not calculated into the student's GPA. A fee for the examination is assessed based on the number of credits assigned to the course.

Residency Requirements. The graduate student must be enrolled at Rush University for the equivalent of three quarters of full-time graduate study.

Absences. Students are responsible for all material presented in class sessions. Faculty will not be available to students who miss or are late for classes. Students are expected to be in attendance at all seminar and clinical practice periods and are responsible for all content presented therein. When illness or other special circumstances prevent attendance, the student is responsible for contacting the instructor (in advance, if possible) to plan for meeting the objectives on an individual basis. Students absent from an examination are responsible for notifying the course director according to the guidelines specified in the course syllabus. Failure to do so will result in a zero for that examination or an incomplete for the course as determined by the course director.

Examination Policy. The examination policy is the responsibility of the individual course director who will inform students of examination requirements for that particular course. A period at the end of the quarter is provided for examinations. This period may be used as the course director chooses.

Incomplete Grades. The grade of incomplete (I) is normally given only when circumstances beyond the control of the student prevent completion of course requirements and the student has received permission to defer completion of these unmet course requirements. The course director shall determine what work will be required to remove the incomplete and shall establish a specific time within which the student must complete such work.

A grade of incomplete does not reflect upon the quality of the student's performance; upon completion of the unmet course requirements, this grade will be replaced by the new grade.

Graduate students may request an incomplete from a course director. If the course director grants the privilege of an incomplete, the I grade must be removed as contracted by the course director and the student. The I grade must be removed by the end of the next quarter or it will revert to a failing (F or N) grade unless otherwise negotiated by the course director and student.

A student receiving an I grade may proceed for one quarter; however, further continuation is

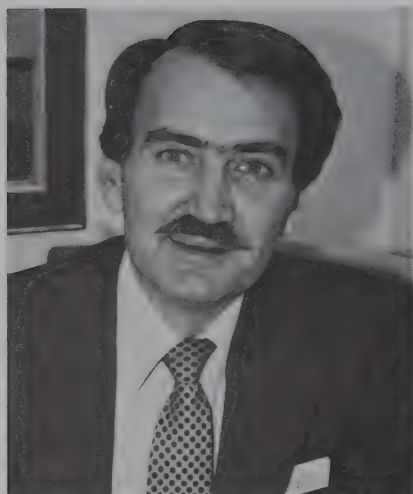
contingent upon the final grade received for the course.

Any exception to these policies for the College of Nursing requires permission from the student's academic advisor, the director of the graduate program, and the Graduate Admissions, Progressions and Graduations Committee. A memo to the registrar signed by both of the above individuals must be presented at the time of registration when the exception is to be granted.

Leave of Absence. A student who must interrupt his/her studies for reasons of sustained ill health or compelling personal situations may apply for a leave of absence for a stated period of time, usually not to exceed one year. Leave of absence requests must be submitted in writing to the Graduate Admissions, Progressions and Graduations Committee. Graduate students who must interrupt study must consult with their academic advisor and submit a revised program of study to the Graduate Admissions, Progressions and Graduations Committee. Nursing students must be in good academic standing to be considered for approval. If approved by the committee and the director of the graduate program, the student must satisfy the conditions of the leave before reentering and must comply with all policies, requirements and course sequences in effect at the time of reentry. At least three months in advance of reenrollment, the student shall notify, in writing, his/her advisor and the Graduate Admissions, Progressions and Graduations Committee of his/her intent to return. (See Academic Information section for additional requirement.)

Readmission. Any student who has withdrawn from a program or has not been enrolled according to the program of study or any dismissed student may apply for readmission by submitting an application for this purpose to the Office of College Admissions Services. Applications for reenrollment must be received at least three months before the planned return. An interview may be required. A reentering student must meet the conditions for reenrollment stated in his/her dismissal or reentry acceptance letter and all policies, requirements, and course sequences in effect at the time of reentry. The student will pay tuition and fees at the rates in effect at the time of reenrollment.

Nursing students who received an unacceptable grade in courses which resulted in dismissal must repeat the course upon their reinstatement. The hour and grade points of the second grade only will be counted in the cumulative GPA.



*John E. Trufant, Ed.D.,
Dean, College of Health Sciences
Vice President, Academic Resources*

"The faculty of the College of Health Sciences, through the unification of their operational and academic responsibilities, strive to develop leaders for the future of health care in an array of the allied health professions. The hallmarks of scholarly excellence are the excitement of discovery, its communication to others, and its application to the field. With faculty and students as colleagues, these are what we seek at Rush."



COLLEGE OF HEALTH SCIENCES

Academic Policies.

(Additional policies are listed in the Academic Information section and in the program descriptions.)

Credit Hours. Rush University is on a quarter system. Each quarter is at least ten weeks in length. An examination period is provided at the end of each term, and most classes give a final examination during this time. The quarter hour is the unit used by the College of Nursing, the College of Health Sciences, and The Graduate College to determine credit for courses taken. As a general rule one quarter hour represents contact time of one lecture hour, two hours of small group discussion or three laboratory or clinical hours per week.

Transfer of Credit. Undergraduate courses taken at an accredited college or university that fulfill the prerequisites for admission may be applied toward the baccalaureate degree.

Graduate credit earned elsewhere may be applied to the master of science degree requirements for Rush, subject to the approval of the department chairman. Before this credit may be approved to meet degree requirements, a transfer credit approval form must be completed. The form should be completed during the first quarter of enrollment in the degree program.

After matriculation, students who plan to request credit for courses taken elsewhere must either complete a transfer credit approval form or register for concurrent enrollment. Information regarding either of these options is available in the Office of the Registrar. Prior approval by the department chairman is required.

Credit by Examination. A student who passes a proficiency examination at Rush University will earn academic credit toward the degree. The credit will equal the credit value of the course as listed in the current *Rush University Bulletin*. Information that is posted on the transcript is the course prefix and number, title, credit value and a K grade. A transcript guide that accompanies all transcripts issued by the Office of the Registrar explains that the K grade means credit was earned through proficiency examination. Credit for the course will appear in the quarterly and cumulative totals as credit earned. The credit is not calculated into the student's grade

point average (GPA). Credit by examination is not available for all courses or in all programs. Availability of proficiency examinations is at the discretion of the department chairman and the faculty.

Full-time and Part-time Enrollment.

Twelve quarter hours is considered full-time enrollment. Registration for fewer than 12 hours constitutes part-time enrollment.

Undergraduate Enrollment in Graduate Courses.

With permission, undergraduate students may register for graduate level courses. Any credit earned in this manner will automatically apply toward the baccalaureate degree. Should an undergraduate student later apply for and gain admission to a graduate program at Rush University, the student may request that the graduate credit earned be applied toward the master's degree. A transfer credit approval form should be completed.

Credit will transfer in this manner only if the student has enough cumulative credits. A student must earn a minimum of 180 quarter hours to receive the bachelor of science degree. If a student actually earns 187 quarter hours, and seven quarter hours are at the graduate level at Rush, seven quarter hours could potentially be credited toward the master's degree.

Incomplete Grades. The grade of incomplete (I) is normally given only when circumstances beyond the control of the student prevent completion of course requirements and the student has received permission from the course director to defer completion of these unmet course requirements. The course director shall determine what work will be required to remove the incomplete and shall establish a specific time within which the student must complete such work.

An incomplete grade does not reflect upon the quality of the student's performance, and upon completion of the unmet course requirements, this grade will be replaced by the new grade.

Medical Technology. Students receiving grades of incomplete are responsible for asking the instructor for the exact work required to remove the incomplete. Work ordinarily shall be completed and a letter grade received by the end of the fifth week of the next quarter the

student is enrolled or sooner at the discretion of the course director.

Graduate Students. Graduate students may request an incomplete from the course director. An incomplete grade not removed by the end of the next quarter will revert to a final grade as determined by the course director.

Absences. Students are responsible for all material presented in class sessions. Faculty members are not obligated to provide extra help to students who miss or are late for classes. When illness or other special circumstances prevent attendance, the student is responsible for contacting the instructor (in advance, if possible) to plan for meeting the objectives on an individual basis. Students absent from an examination are responsible for notifying the course director according to the guidelines specified in the course syllabus. Failure to do so will result in a zero for that examination or an incomplete for the course as determined by the course director.

Examination Policy. The examination policy is the responsibility of the individual course director who will inform students of examination requirements for that particular course. A period at the end of the quarter is provided for examinations. This period may be used as the course director chooses.

Dean's List. Undergraduate students earning a 3.5 (A=4.0) or higher GPA for at least 12 credits of classroom course work are given recognition by having their names placed on the Dean's List. The Dean's List is published at the beginning of each new quarter for work completed in the previous quarter.

Leave of Absence. A student who must interrupt his/her studies for reasons of sustained ill health or compelling personal situations may apply for a leave of absence for a stated period of time, usually not to exceed one year. Leave of absence requests must be submitted in writing to the department chairman or his/her designate.

If approved by the department chairman and dean, the student must satisfy the conditions of the leave before reentering and must comply with all policies, requirements and course sequences in effect at the time of reentry. The student shall provide, to the administrator(s) who granted the leave, written notice of his/her intent to return. The student will pay tuition and fees at the rates in effect at the time of reenrollment. (See Academic Information section for additional requirement)

Readmission. Any student who has withdrawn from a department or has not been enrolled for two consecutive quarters or any dismissed student may apply for readmission by submitting an application for this purpose to the department chairman of the department in question. Applications for reenrollment must be received at least three months before the planned return. An interview may be required. A reentering student must meet the conditions for reenrollment stated in his/her dismissal or reentry acceptance letter and all policies, requirements, and course sequences in effect at the time of reentry. The student will pay tuition and fees at the rates in effect at the time of reenrollment.

Student Appeals Process. A student wishing to appeal an academic decision should follow the process summarized here, in the sequence indicated.

1. Discuss and attempt to resolve the issue with the faculty member in question.
2. Discuss the issue with the department chairman (or with the program director, if applicable).
3. Submit a written appeal to the student progress and promotion committee of the department.
4. Submit a written request for a hearing to the University Committee on Faculty and Student Appeals. The recommendation of this committee will be forwarded to the dean and College Council for review and final determination.

Department of Clinical Nutrition

Philosophy

The primary mission of the Department of Clinical Nutrition is to develop clinical nutrition practitioners who are prepared to assume leadership roles in the profession of dietetics. The program is designed to teach students to integrate and apply principles of food, nutrition, and administrative sciences in order to improve the nutritional status of individuals and groups. The importance of maintaining a current knowledge base and incorporating new knowledge into practice patterns is emphasized throughout the program.

The philosophy of the department parallels that of the Medical Center in that the academic component is fully integrated with the health care function of the institution. The faculty is committed to excellence in teaching, research, and clinical care and strives to be visionary in meeting the future needs of the profession in a changing health care environment.

The Program

A two-track program having a common core of courses and leading to a master of science degree with a major in clinical nutrition is offered.

Track I is a 15-month dietetic internship /master's degree program that integrates didactic and practicum experience. On completion of the program the student is eligible to take the registration examination for dietitians.

Track II is designed for the registered dietitian who wishes to expand his/her understanding of advanced human nutrition, clinical management techniques, and the research process.

Admission Requirements. The student must meet the following requirements:

- hold a baccalaureate degree from an accredited college or university
- provide evidence of having successfully completed a college course in basic statistics
- have a minimum cumulative grade point average (GPA) in college work of 3.0 (A = 4.0)
- have a combined verbal and quantitative score of at least 1000 on the Graduate Record Examination, taken within the last three years

Track I students must provide evidence of having completed the minimum academic requirements necessary for membership in the American Dietetic Association (designated as Plan IV). In addition, evidence of work experience in food service systems and/or clinical dietetics is highly recommended.

Track II students must provide evidence of dietetic registration.

Academic Progression. The faculty reserves the right to request the withdrawal of any student whose conduct, health, or performance demonstrates lack of fitness for continuance in a health profession.

Only grades of A, B or C fulfill degree requirements in all required courses except practicum. A grade of B or above is required in practica. A student who earns a C in a practicum must repeat the course. A grade of D or F in a practicum results in dismissal from the University.

Automatic probation results when a student's cumulative grade point average (GPA) falls below 3.0 or when a student receives a grade of F in any course other than practicum. The Committee on Progress and Promotions writes to a student it places on probation, stating the reason(s) for probation and the conditions that must be satisfied for removal of probationary status.

A student who earns a grade of D or F in a required course, except practicum, must repeat the course. Failure to earn a grade of C or better in a repeated course results in dismissal from the program. A student who earns a grade of D or F in two or more required courses will be dismissed from the University. In a repeated course, the new grade replaces the earlier D or F grade in the cumulative GPA.

Full-time students placed on probation must earn a cumulative GPA of 3.0 or greater by the end of the next two consecutive quarters. Part-time students placed on probation must earn a cumulative GPA of 3.0 or greater after completing the next 25 credit hours. Improvement in GPA must be demonstrated each quarter of probation.

Curriculum: Clinical Nutrition

Fall Quarter	Track I	Quarter Hours	Fall Quarter	Track II	Quarter Hours
NTR 521	Human Metabolism I	4	NTR 521	Human Metabolism I	4
HSM 574	Health Care Delivery Systems	3	HSM 574	Health Care Delivery Systems	3
NTR 503	Dietetics I	3			
NTR 511	Practicum I	<u>3</u>			<u>7</u>
		13			
Winter			Winter		
NTR 522	Human Metabolism II	4	NTR 522	Human Metabolism II	4
NTR 582	Introduction to Research	2	NTR 582	Introduction to Research	4
NTR 504	Dietetics II	3			
NTR 512	Practicum II	<u>3</u>			<u>8</u>
		14			
Spring			Spring		
NTR 541	Interrelationships of Nutrition & Disease I	4	NTR 541	Interrelationships of Nutrition & Disease I	4
NTR 572	Nutrition Communication	2	NTR 572	Nutrition Communication	2
NTR 504	Dietetics III	3			
NTR 513	Practicum III	<u>3</u>			<u>6</u>
		12			
Summer			Summer		
NTR 542	Interrelationships of Nutrition & Disease II	4	NTR 542	Interrelationships of Nutrition & Disease II	4
NTR 586	Applied Research Problem I	3	NTR 585	Applied Research Problem I	6
NTR 506	Dietetics IV	3			<u>10</u>
NTR 514	Practicum IV	<u>3</u>			
		13			
Fall			Fall		
NTR 582	Current Professional Issues	3	NTR 510	Current Professional Issues	3
NTR 587	Applied Research Problem II	3	NTR 551	Nutrition in Human Development I	3
NTR 515	Practicum V	2			
	Electives	<u>5</u>			<u>6</u>
		13			
			Winter		
	Required Hours	60	NTR 552	Nutrition in Human Development II	3
	Elective Hours	<u>5</u>		Total Required Hours	<u>40</u>
	Minimum Hours Required for Graduation	65		Electives	14
				Minimum Hours Required for Graduation	<u>54</u>

Academic Policies

(Additional policies are listed in the College of Health Sciences and in the Academic Information sections.)

Full-time and Part-time Enrollment.

Track I (combined dietetic internship/master's degree program) is offered on a full-time basis only. The program extends over five quarters including a summer session.

Track II (master's degree program for registered dietitians) is offered on a part-time basis only. The program may be completed in six quarters or longer, up to five years.

Graduation Requirements.

A cumulative GPA of 3.0 or greater is required of all graduates.

Track I students shall complete a minimum of 65 quarter hours within 24 months of the beginning of the first quarter of enrollment in the program.

Track II students shall complete a minimum of 54 quarter hours within five years from the beginning of the first quarter of enrollment in the program.

Research Activities

The faculty of the Department of Clinical Nutrition is involved in both basic and clinical research. This activity frequently is in collaboration with Rush Medical College faculty members in such departments as biochemistry, immunology/microbiology, and internal medicine. Often, research activity grows out of nutrition consultations by a faculty member in the section.

Clinical nutrition faculty members have been instrumental in establishing the Research and Teaching Laboratory of the College of Health Sciences. The laboratory director is a member of the clinical nutrition faculty. The principal function of the laboratory is to provide research facilities and equipment to support faculty and student research projects.

Service Activities

Most faculty members contribute to patient care. This service may represent a major responsibility or may be limited to consultation and/or related research. Some faculty members participate in hospital food service administration while others are a part of the health care team working directly with patients. All members are committed to the dissemination of sound nutrition information in the hospital and in the community.



Department of Communication Disorders and Sciences

Philosophy

The basic tenet of the faculty in the Department of Communication Disorders and Sciences is that the professional education of speech-language pathologists and audiologists, who desire practice in hospitals or other health care facilities, is optimized by drawing upon patients, staff and physical resources of an academic medical center. In contrast to many professional training programs, the clinical skills of Rush students are fostered and matured through observation and supervision by practitioner-teachers. All faculty members are certified by the American Speech-Language-Hearing Association (ASHA) and participate fully in the clinical process, serving patients that present a full range of communication disorders. In addition to close clinical supervision, which provides the necessary foundation for clinical education, the faculty developed a curriculum that meets ASHA standards. This faculty is supplemented by the expertise of physicians, scientists, and other health care personnel within the Medical Center. Additionally, the faculty's commitment to research and the belief that an appreciation of scientific matters is valuable to the clinical process and professional growth provide the basis for master's thesis research in the program.

Admission Requirements

Applicants should be eligible for the baccalaureate degree at accredited institutions at the time of application. The baccalaureate degree must be completed before commencing course work at Rush University. An applicant's record must reflect successful completion of course work in at least the following content areas: introduction to communication disorders, introduction to audiology, introduction to psychology, phonetics and normal articulatory production, normal language development, speech and hearing science and clinical methods or practicum. Also, course work in the following content areas is strongly recommended: diagnostics, disorders of articulation, abnormal psychology, behavior modification, developmental psychology, physiological psychology, introduction to linguistics, computer

science, statistics/mathematics, physics and English composition.

Admission is typically granted for the fall quarter of each year. The completed application file includes an application form, application fee, three letters of recommendation from individuals acquainted with the applicant's academic or professional background, official transcripts from all universities and colleges attended and official scores from either the Graduate Record Examination (GRE) or the Miller Analogies Test (MAT). A minimum 3.0 undergraduate grade point average overall (on a 4.0 scale) or a 3.5 in major courses in speech pathology/audiology or a 3.5 in the prerequisite course content as listed in the application is required. Applicants who do not meet the minimum GPA for an automatic interview will have their application reviewed by the admissions committee who will make determination regarding eligibility for interview. The decision of the review committee is final.

Academic Policies

(Additional policies are listed in the College of Health Sciences and in the Academic Information sections.)

Academic Progression. The faculty reserves the right to request the withdrawal of any student whose conduct, health or performance demonstrates lack of fitness for continuance in a health profession. Any such student not voluntarily withdrawing will be dismissed from the University. Appeal of dismissal must be made in writing to the department chairman for consideration by the faculty.

Only grades of A, B or C fulfill degree requirements in all required courses as listed in the curricular outline. Students will be considered in good standing at Rush University, unless placed on academic probation. Due to the nature of the programs, clinical performance and classroom performance will be evaluated separately. Policies related to academic progression will be applied to each independent of the other.

Academic probation is assigned to a student who earns a quarterly GPA between 2.0 and 2.99 (A=4.0), inclusive, or whose cumulative GPA falls below 3.0. Full-time students placed on

probation must earn a cumulative GPA of 3.0 or greater at the end of the next consecutive quarter. Part-time students placed on probation must earn a cumulative grade point average of 3.0 or greater by the end of the next two consecutive quarters.

A student who earns a quarterly grade point average below 2.0 will be dismissed from the University. A student who earns a grade of less than C in a required course must repeat that course, an equivalent course, or an alternative course. Petitions in this regard will be reviewed

by the Curriculum Committee of the department with final approval or denial by the faculty. A student who earns a grade of less than C in two or more required courses may be dismissed from the department. In a repeated course, the new grade will replace the earlier failing grade in the cumulative GPA. Failure to earn a grade of C or better in a repeated course will result in dismissal from the University.

Students placed on academic probation will be notified in writing by the department chairman following a meeting of the faculty at which

Curriculum: Audiology

Fall Quarter	Year I	Quarter Hours	Fall Quarter	Year II	Quarter Hours
SHS 545	Anatomy and Physiology of Speech & Hearing	4	SHS 532	Advanced Hearing Aids	3
SHS 546	Anatomy & Physio. Lab	1	SHS 586	Professional Issues II	1
SHS 501	Speech & Hearing Sciences	4	SHS 582	Introduction to Research	4
SHS 502	Sp. & Hearing Sciences Lab	1	SHS 575	Issues in Counseling	3
SHS 585	Professional Issues I	1	SHS 520	Audiology Practicum V	3
SHS 516	Audiology Practicum I (to include 1 cr. intensive lecture work)	3 14			14
Winter			Winter		
SHS 553	Instrumentation for Hearing and Speech	3	SHS 598	Research Practicum	3
SHS 567	Pathophysiology of Communication Disorders	3	SHS 548	Advanced Electrophysiologic Assessment	3
SHS 506	Audiology II	3	SHS 595	External Practicum	6
SHS 517	Audiology Practicum II	3			12
		15			
Spring			Spring		
SHS 543	Electrophysiologic Assessment of the Auditory System	4	SHS 595	External Practicum	1
SHS 533	Aural Rehabilitation	3			1
SHS 534	Pediatric Audiology	3			
SHS 518	Audiology Practicum III	3			
		13			
Summer					
SHS 523	Sign Language	2	Total		83
SHS 534	Pediatric Aural Rehabilitation	3	Electives		5
SHS 542	Electronystagmography	3	Case Presentation		1
SHS 550	ENG Lab	1			
SHS 526	Industrial Audiology	2	Minimum Required for Graduation		89
SHS 519	Audiology Practicum IV	3			
		14			

academic progress has been discussed. The letter will state the reasons for placing the student on academic probation and the specific requirements that must be met by the student to reestablish good standing.

Graduation Requirements. The master of science degree with a major in either speech-language pathology or audiology requires a cumulative GPA of 3.0 or greater to graduate. All

degree requirements must be completed within 36 months from the beginning of the first quarter in which the student is enrolled in the department. The minimum number of quarter hours required for graduation is 103.

Professional Certification

Programs in communication disorders and sciences provide the academic background

Curriculum: Speech-Language Pathology

Fall Quarter	Year I	Quarter Hours	Fall Quarter	Year II	Quarter Hours
SHS 545	Anatomy and Physiology of Speech & Hearing	4	SHS 568	Cognitive Disorders	3
SHS 546	Anatomy & Physio. Lab	1	SHS 586	Professional Issues II	1
SHS 501	Speech & Hearing Sciences	4	SHS 582	Introduction to Research	4
SHS 502	Sp. & Hearing Sciences Lab	1	SHS 575	Issues in Counseling	3
SHS 585	Professional Issues I	1	SHS 515	Speech-Language Practicum V	3
SHS 511	Speech-Language Practicum I (to include 1 cr. intensive Audiology work)	3			
		14			14
Winter			Winter		
SHS 533	Instrumentation for Hearing and Speech	3	SHS 589	Research Practicum	3
SHS 564	Apraxia	3	SHS 524	Fluency, Dysfluency, and Stuttering	3
SHS 561	Articulation Disorders	3	SHS 590	External Practicum	6
SHS 556	Swallowing I: Diagnosis	1			12
SHS 512	Speech-Language Practicum II	3			
		13			
Spring			Spring		
SHS 565	Motor Speech Disorders	3	SHS 590	External Practicum	1
SHS 551	Diagnostic Methods	4			1
SHS 552	Diagnostic Methods Lab	1			
SHS 533	Aural Rehabilitation or	3			
SHS 534	Pediatric Aural Rehabilitation	3			
SHS 557	Swallowing II: Management	1			
SHS 513	Speech-Language Practicum III	3			
		15			
Summer					
SHS 563	Voice Disorders	4		Total	83
SHS 522	Language Disorders in Children	3		Electives	5
SHS 562	Craniofacial Anomalies	3		Case Presentation	1
SHS 558	Swallowing III: Instrumentation	1		Minimum Required for Graduation	89
SHS 514	Speech-Language Practicum IV	3			
		14			

necessary to sit for the national certification examination and to begin the clinical fellowship year.

Practicum

Supervised clinical practica occur each quarter during the seven-quarter program. A minimum of 36 quarter hours of clinical practicum is required. These experiences include those at selected sites inside and outside of the Medical Center. Opportunities provide experiences with a full range of speech, language and hearing disorders. Students are able to express their preferences with regard to practicum sites outside the Medical Center.

Educational Activities

The Department of Communication Disorders and Sciences provides professional training in speech-language pathology and audiology. Its programs are two of the few in the United States that base the education of speech pathologists and audiologists on the facilities and opportunities offered by an academic medical center. In addition to teaching and supervisory responsibilities for the master of science degree programs in the College of Health Sciences, faculty members involve themselves in articulating the practical and service aspects of

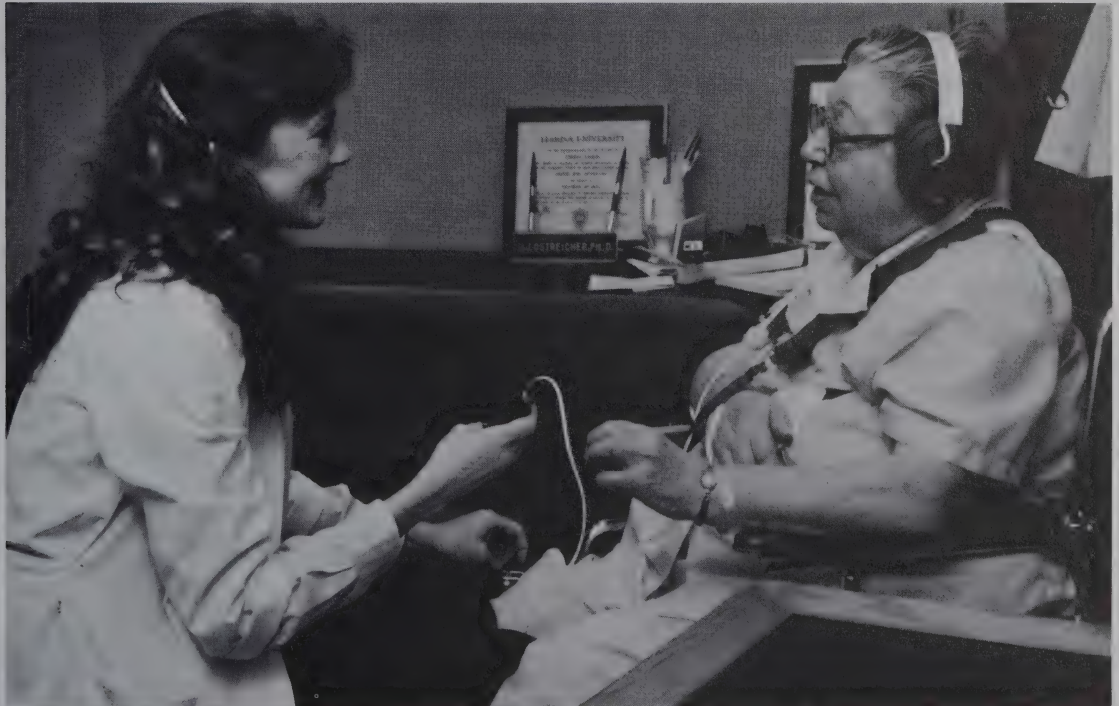
communication disorders through resident, clerkship, and inservice programs at Presbyterian-St. Luke's Hospital.

Research Activities

In the recent past, faculty and graduate students have collaborated on a number of research projects. Faculty-student collaborative projects were presented at state and national meetings. The Department of Communication Disorders and Sciences continues to be involved in numerous cross-departmental and interinstitutional investigations in the areas of audiology, hearing science, and speech-language pathology.

Service Activities

The faculty provides a full range of diagnostic and therapeutic services for the communicatively impaired through the Section of Communicative Disorders, Department of Otolaryngology and Bronchoesophagology. Faculty has demonstrated considerable expertise in developing specialized evaluative and treatment programs for the communicatively handicapped. Both inpatients and outpatients are served.



Department of Health Systems Management

Philosophy

The Department of Health Systems Management was formally established in 1975. The department's goals are to provide a graduate program for future health systems managers; to provide postgraduate and continuing education for health systems managers and to conduct research in order to validate and to further innovation in the management of health care services.

Admission Requirements

Prospective students should have a baccalaureate degree from an accredited college or university with basic course work in financial accounting and statistics. Courses in macro- and microeconomics and computer science are strongly recommended. Applicants are also required to submit scores from either the Graduate Management Aptitude Test (GMAT) or the Graduate Record Examination (GRE), three confidential letters of recommendation and official transcripts.

Curriculum

Comprised of six academic quarters, the curriculum is designed to instruct students in the current theory and practice of health services management including the study of organizational behavior, quantitative and analytical techniques, planning, finance, and human resources management. The structure of the curriculum allows students the opportunity to apply managerial principles in real world learning environments and to design and conduct applied research projects.

Curriculum content focuses on the following:

- an understanding of health services administration through a study of health economics and medical sociology
- knowledge of individual social and environmental determinants of health, disease and disability through a study of health measurement, patterns and

characteristics of illness, health promotion, and disease intervention

- an understanding of management and administrative skills and their application to health services organizations through a study of organizational behavior, quantitative methods, budgeting, information systems, law, planning and policy development, marketing, manpower planning, personnel management, labor relations, multi-institutional arrangements, long-term care, ambulatory care, and managerial decision making

Academic Progression. All graduate students in the Department of Health Systems Management must achieve a grade point average of 3.0 (A=4.0) in all course work each quarter to maintain satisfactory academic status. Academic probation results when a student's grades fall below a quarterly or cumulative grade point average of 3.0 or when a student receives a grade of F in any course. Any health systems management student may be placed on academic probation when the student's academic deficiencies are significant as judged by the Committee on Progress and Promotions. A student on academic probation shall remain so until he/she has remedied all deficiencies and has met all requirements established by the Committee on Progress and Promotions for removal from academic probation.

Academic Policies

(Additional policies are listed in the College of Health Sciences and in the Academic Information sections.)

Full-time Enrollment. The curriculum is offered full time only. A full-time student is one who is registered for 12 or more hours of course credit per quarter leading toward a master's degree with a major in health systems management.

Graduation Requirements. To be eligible to graduate, a student must have successfully completed all the academic requirements of the Department of Health Systems Management and

Curriculum: Health Systems Management

Fall Quarter		Year I	Quarter Hours
HSM 502	Health Care Organization I	W. Lerner	3
HSM 506	Medical Sociology	M. Counte	4
HSM 585	Quantitative Methods I	L. Thompson	4
HSM 553	Computers for Health Systems Managers	D. Mon	4
Winter Quarter			
HSM 503	Health Care Organization II	W. Lerner	3
HSM 545	Organizational Analysis	J. Trufant	3
HSM 586	Quantitative Methods II	L. Thompson/ W. Wellman	4
HSM 530	Foundations of Economic Analysis	G. Glandon	4
Spring Quarter			
HSM 531	Finance I	J. Frankenbach	4
HSM 507	Epidemiology	D. Oleske	4
HSM 587	Quantitative Methods III	W. Wellman	4
HSM 554	Decision Support Systems	W. Menning	4
Fall Quarter		Year II	
HSM 532	Finance II	P. Butler	4
HSM 561	Planning I: Strategic Planning	K. Holloman	3
HSM 515	Human Resources Management I	R. Lewandowski	4
HSM 597	Graduate Project	M. Counte	4
Winter Quarter			
HSM 536	Corporate Finance	K. Necas	3
HSM 562	Planning II: Marketing	C. Newman	3
HSM 597	Graduate Project	M. Counte	4
HSM 533	Health Economics	G. Kaatz	3
HSM 546	Advanced Organizational Analysis or	A. Carvalho	3
HSM 516	Human Resources Management II	R. Lewandowski	3
Spring Quarter			
HSM 539	Finance Seminar	P. Butler	3
HSM 543	Health Law	M. Brown	4
HSM 595	Graduate Seminar	M. Counte/ M. Sinioris	1
	Electives		6
HSM 556	Medical Group Practice Management	R. Whitaker	3
HSM 557	Quality Assurance in Health Care	S. Sochacki	3
HSM 576	Ethics for Health Care Management	R. Burke	3
HSM 555	Health Care and the Elderly	E. Crane	3

achieved a minimum cumulative grade point average of 3.0. In order to receive a master of

science degree with a major in health systems management, the student must have earned a

minimum of 90 quarter hours of credit. Prior to graduation, the Committee on Progress and Promotions shall recommend to the entire department faculty for its approval those students who are to be awarded degrees.

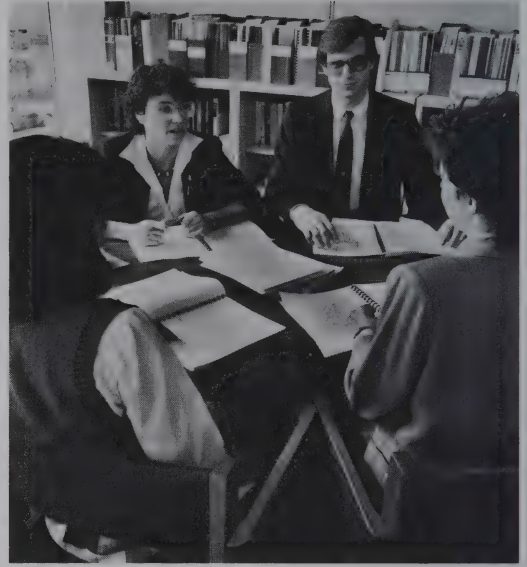
Educational Activities

Members of the faculty have represented the institution by presenting papers or serving as members of the program faculty in symposia or seminars sponsored by the American Hospital Association, the Hospital Financial Management Association, the American College of Healthcare Executives, the Hospital Management Systems Society, the Illinois Hospital Association and many other professional groups. Each year the Department of Health Systems Management and the Center for Health Management Studies sponsor the annual Rush Invitational Seminar on Hospital and Health Affairs. This past year's symposium, "Who's Sharing Our Health Care Policy?" was attended by a record number of health care executives from across the nation.

Research Activities

The Center for Health Management Studies is the focus for the ongoing development of health services research in the Department of Health Systems Management and the Medical Center. Research enables Rush to continue its national prominence as an innovator and pioneer in health care delivery. The output of the department's health services research can most effectively contribute to the evolution of public policy and to an environment of practice supportive of an efficient and effective health care delivery system. On occasion, students are given the opportunity to participate as research assistants to develop further their skills and perspectives.

The department sponsors monthly research seminars that provide a forum for health systems management faculty to present and discuss their research activities with interested students, faculty and practitioners from throughout the community.



Service Activities

Members of the faculty of the Department of Health Systems Management are actively involved in the operation of the Medical Center through such capacities as hospital administrator, health care planner, University administrator, financial manager, clinician, corporate and labor attorney, researcher, and data processing manager.

Individuals on the faculty, depending on their areas of expertise, frequently are asked to serve as consultants to hospitals, planning bodies, and other organizations.

Additional contributions to the health care field also include serving as faculty in continuing education programs for health service administrators sponsored by the American Hospital Association, the Hospital Financial Management Association, the American College of Healthcare Executives, the Hospital Management Systems Society and the American Association of Medical Colleges.

Department of Medical Physics

Philosophy

The Department of Medical Physics offers two programs of study and research leading to graduate degrees. The faculty members of the division are active in theoretical and experimental research in medical physics and its clinical applications. The diversity of interests of the faculty allows the department offer a program yhat can satisfy the the interests and needs of students in several areas of medical physics: dosimetry, imaging applied to medicine, radiation sources, physics of radiation therapy, physics of diagnostic radiology, physics of nuclear medicine and radiation protection.

Career Opportunities

Medical Physics is concerned with the application of the concepts, methods and forces of physics to the diagnosis and treatment of human disease. Medical physicists work at the forefront of medical science, often in hospitals with associated academic programs. They carry out research, give direct assistance to their medical colleagues and help train future medical physicists, resident physicians, medical students and medical technicians.

The Program

The master of science with a mjaor in medical physics program is offered through the Department of Medical Physics. The diversity of interests of the faculty allows the department to offer a comprehensive program responsive to the needs of students in several areas of medical physics: dosimetry, imaging applied to medicine, radiation sources, physics of radiation therapy, physics of diagnostic radiology, physics of nuclear medicine, and radiation protection.

In order to produce well-rounded, highly competent medical physicists, the curriculum provides training in the physics aspects of radiation therapy, diagnostic radiology, nuclear medicine, radiation protection, and radiobiology, as well as in such subjects as anatomy, physiology, and computer science. The recommended curricular sequence follows.

Admission Requirements

The successful applicant must meet the following requirements:

- hold a bachelor of science degree with a major in physics from an accredited college or university or
- hold a bachelor of science degree in physical science with a minor in physics from an accredited college or university
- complete one year of college chemistry with laboratory. This requirement may be satisfied within the M.S. program.
- earn a cumulative grade point average (GPA) of at least 2.5 (A = 4.0) in college work
- earn a cumulative science GPA of at least 3.0 in college work
- submit Graduate Record Examination (GRE) results, achieved within the last three years
- supply three letters of recommendation from previous college or university instructors
- provide evidence of prior success in pursuing independent study
- write a description of his/her scientific research interests

Applicants holding a baccalaureate degree but with no graduate training should apply for the fall quarter to insure appropriate course sequencing. Such applications will be accepted until February 15 with notification to the applicant of admissions committee action no later than April 15. Later applications may be accepted on a space available basis.

Students with graduate school or scientific research experience may apply for admission to begin study any quarter of the year. Such applications should be made at least two months prior to the start of classes for the quarter in question.

Curriculum: Medical Physics

Fall Quarter	Year I	Quarter Hours	Fall Quarter	Year II	Quarter Hours
MPH 482	Therapeutic Radiation Physics	3	MPH 460	Intro. to Radiation Safety/ Diagnostic Radiological Physics	3
MPH 501	Radiation Physics	3	MPH 463	MR Imaging	2
PHY 555	Physiology of Cell Homeostasis	6	MPH 483	Dosimetry Applied to Therapeutic Radiology	4
		12	MPH 505	Radiation Physics Lab	3
					12
Winter			Winter		
MPH 457	Radiation Safety of Radiological Materials	2	MPH 458	Radiation Safety Lab	2
MPH 484	Brachtherapy Physics	2	MPH 465	Computer Imaging	2
MPH 502	Radiological Physics I	4	MPH 481	Intro. to Therapeutic Radiation Physics	3
MPH 505	Radiation Physics Lab	4	MPH 505	Radiation Physics Lab	3
		12			10
Spring			Spring		
MPH 471	Physics of Nuclear Medicine I	3	MPH 483	Dosimetry Applied to Therapeutic Radiology	4
MPH 503	Radiological Physics II	4	MPH 486	Hyperthermia	1
MPH 531	Radiation Biology	3	MPH 505	Radiation Physics Lab	3
MPH 505	Radiation Physics Lab	2	MPH 542	Radiation Oncology	2
		12			10
Summer					
ANA 465	Gross Anatomy	5	Total		76
MPH 505	Radiation Physics Lab	3	Plus Electives		4
		8	Minium Required for Graduation		80

Academic Policies

(Additional policies are listed in the College of Health Sciences and in the Academic Information sections.)

Academic Progression. The faculty reserves the right to request the withdrawal of any student whose conduct, health or performance demonstrates lack of fitness for continuance in a health profession. Any such student not voluntarily withdrawing will be dismissed from the University.

Only grades of A, B and C fulfill degree requirements of required courses. Students will be considered in good standing at Rush University unless placed on academic probation.

Academic probation is assigned to a student who earns a quarterly GPA between 2.0 or 2.99 inclusive, or whose cumulative grade point average falls below 3.0. Full-time students placed on probation must earn a cumulative GPA of 3.0 or greater at the end of the next consecutive quarter. Part-time students placed on probation must earn a cumulative GPA of 3.0 or greater by the end of the next two consecutive quarters.

A student who earns a quarterly grade point average below 2.0 will be dismissed from the University. A student who earns a grade of D or F in a required course must repeat the course. Failure to earn a grade of C or better in a repeated course will result in dismissal from the

University. A student who earns a grade of D or F in two or more required courses will be dismissed from the University. In a repeated course, the new grade will replace the earlier D or F grade in the cumulative GPA.

Students placed on academic probation will be so notified by the department director following a meeting of the Student Progress Review Committee. The letter will state the reasons for placing the student on academic probation and the specific requirements that must be met by the student to reestablish good standing.

Full-time and Part-time Enrollment.

Although the faculty recommends full-time enrollment to maximize the opportunities available to students, part-time enrollment for all, or part, of the program may be arranged.

Graduation Requirements. The master of science with a major in medical physics program requires a cumulative grade point average of 3.0 or greater to graduate. All degree requirements must be completed within five calendar years from the beginning of the first quarter in which the student is enrolled in the program. The minimum number of quarter hours required for graduation is 80. Each student must develop and carry out a research project that culminates in the writing of a thesis or the completion of several practicum reports.

At the end of the first year, the student must take and pass a qualifying examination based on selected basic principles of physics and course work taken to date. The examination will include both written and oral components. Passing this examination qualifies the student to continue work toward the master's degree. A final examination in defense of the thesis and/or practicum reports will be given at the end of the second year. Failure to pass the final examination will require determination by the faculty whether the student will be granted a second and last opportunity. Upon such recommendation, a second examination may be

scheduled at a mutually determined time within nine months of the initial examination.

Professional Certification

This program provides the basis for certification as a radiological physicist by the American Board of Radiology.

Educational Activities

In addition to providing educational and research experiences for students in the master's program, medical physics faculty members, who hold joint faculty appointments in Rush Medical College, participate in the education of medical and other health professions students and residents.

Service Activities

All faculty members are practitioner/teachers who provide patient care services through the facilities of Presbyterian-St. Luke's Hospital. Several faculty members also serve as medical physics consultants to a network of hospitals and health care centers in metropolitan Chicago.

Research Activities

Faculty members are active in theoretical and experimental research in medical physics and in its clinical applications. This research includes the study of basic mechanisms by which radiation transfers energy to biological and chemical materials; the development of new techniques for directing and measuring various radiations used in the detection, diagnosis, and treatment of cancer; the application of radioactive tracers to diagnosis and to the study of metabolic processes and the optimization of physical parameters for specific studies in diagnostic medical imaging including radiology, computerized radiography and tomography, radionuclide imaging, dosimetry in radiation protection, and radiobiology.

Department of Medical Technology

Philosophy

The contribution of medical technology to the patient and to the health care delivery system is primarily one of diagnostic services. The increasing number and wide range of diagnostic tests performed by medical technologists requires frequent adaptation to new laboratory methodologies and instrumentation. In turn, clinical medicine requires today's medical technologist to be a highly qualified professional who is willing and able to expand and extend his/her theoretical knowledge and technical skills. Today's professional technologist must develop technical expertise as well as teaching and administrative competence. The technologist must be able to adapt to rapid changes in the field while maintaining an optimal level of performance. As a member of the health care team, the medical technologist must have a basic understanding of the role of other health practitioners in order to function effectively and bring the best possible care to the individual and community. Although work in medical technology often does not place the practitioner in direct contact with the patient, the technologist must maintain compassion and empathy and accept the patient's welfare as the highest priority.

It is the aim of the baccalaureate program in medical technology to educate technologists to meet effectively the changing needs of laboratory medicine.

Admission Requirements

Students wishing to apply to the medical technology program may do so in one of two ways. Students may attend either an accredited college or university of their choice or one of the schools affiliated with Rush University that offers preparation for medical technology. All applicants must complete the preprofessional requirements. Applicants from institutions that have no affiliation with Rush should apply to the medical technology program by March for admission in the fall. Students at an affiliated school are recommended for admission to the Rush program by their health careers advisor at the affiliated school. Of the 16 schools affiliated with Rush University, the following offer preparation for medical technology:

Beloit College, Beloit, Wisconsin
Carleton College, Northfield, Minnesota
Colorado College, Colorado Springs, Colorado
Cornell College, Mt. Vernon, Iowa
Fisk University, Nashville, Tennessee
Grinnell College, Grinnell, Iowa
Illinois Institute of Technology, Chicago, Illinois
Knox College, Galesburg, Illinois
Lake Forest College, Lake Forest, Illinois
Lawrence University, Appleton, Wisconsin
Macalester College, St. Paul, Minnesota
Monmouth College, Monmouth, Illinois
North Central College, Naperville, Illinois
Ripon College, Ripon, Wisconsin
Wheaton College, Wheaton, Illinois

Curriculum

Preprofessional Program. The prehealth portion of the medical technology program is taken at an affiliated college or other accredited college or university and requires two or three years of study, depending upon the college. These years are devoted to preparing the scientific foundation upon which the practice of medical technology can be built. The first year emphasizes courses in biological, physical and behavioral sciences with options in the humanities. The succeeding prehealth years are used to increase depth in the sciences as they relate more specifically to health fields and to enhance personal experience by a broad choice of electives in the humanities.

Specific course offerings and requirements may vary from campus to campus due to curricular offerings, scheduling and course content. The listing suggests the kinds of courses that normally are required before a student comes to the Rush campus.

Professional Program. In the junior and senior years the student integrates the theory of clinical medicine with the practice of clinical laboratory procedures, learning basic theory and skills in hematology, clinical chemistry, immunology, and clinical microbiology in the junior year, going on to more advanced courses in those areas in the senior year. Senior students apply basic concepts as they rotate

Curriculum: Professional Program*

Fall Quarter	Junior Year	Quarter Hours	Fall Quarter	Senior Year	Quarter Hours
BCH 411	Clinical Biochemistry I	4	IMM 402	Clinical Immunology	2
MTK 304	Basic Laboratory Skills	7	MTK 421	Practicum in Clinical Chemistry	8
HEM 301	Hematology I	5	MTK 423	Practicum in Immunology	4
		<hr/>	BCH 413	Clinical Biochemistry III	3
		16			<hr/>
					17
Winter			Winter		
MIC 311	Diagnostic Bacteriology	5	MTK 422	Practicum in Hematology	8
BCH 412	Clinical Biochemistry II	4	MTK 425	Practicum in Immunohematology	4
MTK 303	Body Fluid Analysis	5	HEM 425	Hematology II	2
IMM 301	Basic Immunology	3	MTK 305	Patient Care Techniques	2
		<hr/>			<hr/>
		17			16
Spring			Spring		
MIC 411	Parasitology, Mycology, & Virology	5	HSM 301	Health Care Management	3
IMM 403	Clinical Serology	5	MTK 441	Seminar in Medical Technology	2
IMM 431	Immunohematology	5	HEM 426	Hematology III	2
		<hr/>	MTK 424	Practicum in Microbiology	8
		15			<hr/>
					15
*Courses may not be offered in sequence listed but all are required courses			Total Required Hours		96
			Prehealth Hours		90
					<hr/>
					186
			Minimum Required for Graduation		

through the laboratories of Presbyterian-St. Luke's Hospital and affiliated hospitals. In addition, students are prepared to fill supervisory and teaching positions through courses in management and education.

Academic Progression. The faculty reserves the right to request the withdrawal of any student whose conduct, health or performance demonstrates lack of fitness for continuance in a health profession. Any such student not voluntarily withdrawing will be dismissed from the University.

High academic performance in required courses is expected. Undergraduate students will be considered in good standing at Rush University unless placed on academic probation.

Academic probation is assigned to any student who earns a quarterly grade point average (GPA) below 2.0 (A=4.0) or whose cumulative GPA falls below 2.0. Students placed on probation have two quarters in which to regain the status of good standing. Failure to do so will result in dismissal from the University. Medical technology students may receive no more than one D in the following courses each year to remain in the program:

BCH 411, 412, 413
IMM 301, 402, 403, 431
MIC 311, 411
HEM 301, 425, 426
MTK 303, 304

An F grade in any of these courses will result in dismissal.

Work in all practicum courses must be at the C level or better. Any work in practicum courses below the level required for a C grade will result in an F grade. Courses in which an F grade is received may be repeated only once with the new grade replacing the F in the cumulative GPA. A second grade of F in a practicum course will result in dismissal. Any student who needs to repeat a practicum course must do so within one year.

Academic Policies

(Additional policies are listed in the College of Health Sciences and in the Academic Information sections.)

Full-time Enrollment. The medical technology professional program requires full-time enrollment from September to June.

Certification. The comprehensive technical curriculum at Rush University prepares the student to enter the practice of medical technology. Graduates are eligible to take the National Certifying Examination given by the American Society of Clinical Pathologists, and, upon passing the examination, they become certified as medical technologists, MT(ASCP). Graduates are eligible to take any of the other national certifying examinations if they desire.

Graduation Requirements. The bachelor of science degree with a major in medical technology requires a minimum of 180 quarter hours. This includes at least 90 quarter hours earned before entrance as a lower division student at an affiliated school or as a transfer student. A minimum of 45 quarter hours of academic credit shall be earned as an upper division student in academic residence at Rush University.

Candidates for the bachelor of science degree must earn a 2.0 cumulative grade point average in all computed upper division credits taken at Rush University.

Participation in cap and gown at commencement exercises is expected of all graduates.

Educational Activities

The faculty of the department is responsible for providing both the didactic course work and the clinical experiences necessary for students to complete successfully all degree requirements for the bachelor of science with a major in medical technology. The department is accredited by the American Medical Association's Committee on Allied Health Education and Accreditation (CAHEA).

Research Activities

Faculty members of the Department of Medical Technology engage in either technical or educational research. Areas include biochemistry, education, hematology, hospital administration, immunohematology, immunology, and microbiology.

The Department of Medical Technology supports and is involved in the administration of the Research and Teaching Laboratory. The primary function of the laboratory is to provide research facilities and equipment in support of faculty and student research projects.

Service Activities

Faculty members are actively involved in the clinical laboratories of Rush-Presbyterian-St. Luke's Medical Center, maintaining active research, supervisory, and clinical positions in their specialty areas. Several faculty members hold conjoint appointments in Rush Medical College and teach the laboratory medicine courses for the medical college curriculum.

The Department of Medical Technology offers a continuing education program for the laboratory staff of Rush-Presbyterian-St. Luke's Medical Center, maintaining a record of the continuing education activities of all participants. Program faculty and resources span the continuum of clinical laboratory medicine and, therefore, actively support all areas where technical laboratory application is involved.

Department of Occupational Therapy

The Department of Occupational Therapy offers two graduate programs, each of which prepares the student for unique contributions to the field of occupational therapy. The professional program is designed for individuals with baccalaureate degrees in other fields who are seeking to become occupational therapists at the graduate level. The postprofessional program is designed for registered occupational therapists who are interested in advanced knowledge in the field. Students are not being accepted into the post professional program during the current academic year because the program is undergoing significant revisions of the structure and content of the curriculum.

Philosophy

The faculty of the graduate programs in occupational therapy emphasizes the educational approach that integrates occupational therapy and didactic material with clinical instruction and practice. The purpose of this educational philosophy is to allow the student maximum opportunity for the highest levels of integration of content and understanding of rationale for instruction. This philosophy is fostered through such concurrent sequencing of theory and clinically based experience that the student is able to relate to either or both environments depending upon which best facilitates the learning process. The early and continuous collaboration between the theoretical and the clinical learning environments allows for the development of a collegiality between faculty and students. Through such a relationship, the student's personal growth and opportunities for independent thinking are fostered. Since the program is concerned with the student as an individual, the relationship with faculty provides the student with a variety of individualized learning options and experiences within diversified work environments.

Professional Program

Educational Orientation. The professional graduate program at Rush University is designed for the student who has acquired a variety of life experiences through previous educational, vocational, and avocational activities. The program facilitates the incorporation of these life

experiences into the educational activities of the program. The educational philosophy utilized in the program which best addresses these spheres is based on theories of adult learning. By basing the program on adult learning theories, it is possible to build on the students' pasts, connect them to their present activities and predict a future of their competent, capable responses to the needs of the profession. The program is designed to enable the student to learn not only the content and theories of occupational therapy, but also the process of using the multiple resources of the learning environment, including teachers and peers. A series of carefully designed learning experiences, occurring within and outside the classroom, promote independence in conjunction with collegial interaction, problem solving and critical thinking, and analysis and synthesis of information. The graduate is a competent therapist who has maintained initial curiosity and has added increased ability for creative thinking. Because of experiences in self-directed learning and in self-identification of needs, the graduate is able to be responsible and responsive to the needs of the profession. The graduate is a potential learner in the field who is able to work in the traditional settings of occupational therapy, but, more importantly, the graduate is flexible, autonomous, and informed so as to adapt to the practice of the field in nontraditional settings.

Professional Orientation. The foundation of this specialized degree program is based on those principles and concepts of the neurosciences which are encompassed in the practice of sensory integrative therapy. Although occupational therapy relies on several different theoretical constructs, at this advanced level of professional education the neuroscientific approach is more suitable to facilitating the acquisition of a sound base in sensory integration. The sensory integration focus of the program, neurological in perspective, is also rooted in the fundamental premise of occupational therapy--the client viewed as a whole functioning person can best be treated through the use of therapeutic activity. The basic assumption of this program is that activity is an integral part of an individual's life and that successful involvement in activity relies on man's sensory integrative mechanisms and their neurological foundations.

Curriculum: Occupational Therapy, Professional Curriculum

Summer Quarter	Year I	Quarter Hours	Fall Quarter	Year II	Quarter Hours
ANA 465	Gross Anatomy	5	OCC 533	Principles and Methods of Supervision	2
OCC 450	Special Studies (PLATO)	1	OCC 545	Management Issues in O.T.	2
		<hr/>	HCE 525	Professional Communication	3
		6	HCE 581	Introduction to Research	4
			OCC 513	O.T. Intervention III	6
					<hr/>
					17
Fall			Winter		
OCC 501	Activity Theory and Skills	4	OCC 495	Fieldwork I	1
OCC 461	Health and Development	3	OCC 585	Research Proposal	3
OCC 463	Principles of Movement	3			<hr/>
PSY 501	Intro. to Psychopathology	3			4
		<hr/>			
		13			
Winter			Spring		
NEU 501	Introduction to Neuroscience	4	OCC 496	Fieldwork II	1
OCC 502	O.T. History and Philosophy	3	OCC 598	Research Implementation (Thesis)	3
OCC 465	Group Dynamics	3			<hr/>
OCC 505	Pathophysiology in O.T.	3			4
		<hr/>			
		13			
Spring			Summer		
OCC 506	Medical Conditions Seminar	2	OCC 514	O.T. Intervention IV	4
OCC 511	O.T. Intervention I	6	OCC 598	Research Implementation (Thesis)	3
OCC 541	Tests & Measurement in O.T.	4	OCC 590	Advanced Topics Seminar	2
OCC 510	Special Topics Seminar	3			<hr/>
		<hr/>			9
		15			
Summer					
OCC 512	O.T. Intervention II	6	Minimum Required for Graduation (Elective courses are optional and may be taken at student's discretion)		
HSM 545	Organizational Analysis	3			
OCC 521	Etiology of Occupation	4			
OCC 531	Principles & Methods of Education	2			
		<hr/>			
		15			95

This graduate program allows the student to practice and integrate neurological/sensory integration principles and the fundamental premise of occupational therapy within the framework of the basic roles of therapist-practitioner, researcher and educator. The graduate of this program is, above all else, a practitioner who is able to incorporate the techniques of sensory integrative treatment into

the ongoing practice of occupational therapy. Since research and education are important to the process of graduate education and are also major professional needs, the roles of researcher and educator are vital components of the practitioner role. The Rush program is designed so that, in the context of their studies, students have the opportunity to explore the functions of the therapist as an educator, researcher, and

manager in terms of how they are employed by the practitioner.

Admission Requirements. The applicant to the professional program in occupational therapy must show evidence of the following in order to be considered for admission:

- a baccalaureate degree from an accredited college or university
- a recommended cumulative undergraduate grade point average (GPA) of 3.0 (A = 4.0)
- Graduate Record Examination results, achieved within the last five years
- three letters of reference
- a personal interview with members of the occupational therapy faculty or designated substitutes
- a statement of familiarity with occupational therapy in the form of observational, volunteer, or work experience
- prerequisite courses, as follows:
 - statistics
 - human growth and development (child through adult)
 - psychology (two courses)
 - introductory sociology or anthropology
 - human anatomy
 - human physiology

Academic Progression

The faculty reserves the right to request the withdrawal of any student whose conduct, health, or performance demonstrates lack of fitness for continuance in a health profession. Any such student not voluntarily withdrawing will be dismissed from the University.

Only grades of A, B or C may fulfill degree requirements in all required courses. Students will be considered in good standing at Rush University unless placed on academic probation.

Academic probation is assigned to a student who earns a quarterly GPA between 2.0 and 2.99, inclusive, or whose cumulative GPA falls below 3.0. Full-time students placed on probation must earn a cumulative grade point average of 3.0 or greater at the end of the next consecutive quarter. Part-time students placed on probation must earn a cumulative GPA of 3.0 or greater by the end of the next two consecutive quarters.

A student who earns a quarterly GPA below 2.0 will be dismissed from the University. A student who earns a grade of D or F in a required course must repeat the course. Only one required course may be repeated in the postprofessional program and two required courses may be repeated in the professional program. A required course may be repeated



only once and the new grade will replace the earlier D or F grade. Failure to earn a grade of C or better in a repeated course will result in dismissal from the University. Only one D or F grade is allowed in a given academic year.

Students placed on academic probation will be so notified by the program director following a meeting of the faculty at which academic progress has been discussed. The letter will state the reasons for placing the student on academic probation and the specific requirements to be met by the student to reestablish good standing.

Any deviation from these policies must be approved by the Departmental Progress and Promotions Committee.

Academic Policies

(Additional policies are listed in the College of Health Sciences and in the Academic Information sections.)

Full-time and Part-time Enrollment.

Professional Program. The full-time academic program is a 27-month program covering nine academic quarters. A minimum of 95 credits is required for graduation. Instruction is provided by occupational therapy faculty and faculty members from other departments and colleges within the University.

Completion of all courses may take 39 months, on a part-time basis, but the final 12 months must be conducted on a full-time basis. All degree requirements must be completed within 42 months from the beginning of the first quarter in which the student is enrolled in the program. To be considered part time, a student must be enrolled for a minimum of three credits and fewer than 12 credits per quarter. A minimum of 95 credits is required for graduation.

Scheduling. Professional Program. Courses are scheduled daily, Monday through Friday, with occasional Saturday classes.

Fieldwork/Practica. Professional Program. Preclinical experiences (i.e., part-time fieldwork) occur as part of each of the occupational therapy intervention courses. Because the University is part of an academic medical center, additional clinical experiences are arranged as a component of other courses when necessary.

Six months (two academic quarters) of full-time fieldwork is a requirement of the program. Fieldwork experiences are arranged by mutual agreement of students and faculty and occur at selected sites inside and outside of the Medical Center. Students may choose to extend the program by one quarter during which time they may have an additional fieldwork experience.

Professional Certification. Professional Program. Completion of degree requirements allows the graduate to sit for the certification examination of the American Occupational Therapy Association. Successful completion of this examination is necessary to become a registered occupational therapist.

Graduation Requirements. Professional Program. The master of science with a major in occupational therapy requires a cumulative grade point average of 3.0 or greater to graduate. All degree requirements must be completed within 42 months from the beginning of the first quarter in which the student is enrolled in the program. The minimum number of quarter hours required for graduation is 95.

Educational Activities

The Department of Occupational Therapy provides professional training for those seeking to become occupational therapists and for those who are experienced in the field and interested in advanced studies. The program prepares individuals to enter or return to the professional community to practice the skills of occupational therapy, basing that practice on a full understanding of the foundations and principles of the field, and to engage in research and educational activities to enhance further the theory and practice of occupational therapy.

Faculty members within the Department of Occupational Therapy have teaching and supervisory responsibilities for the master of science degree programs in the College of Health Sciences. In addition, faculty members are involved in integrating the theoretical and clinical aspects of occupational therapy through the implementation of programs with diagnostic and development groups in the various occupational therapy units of the Medical Center.

Research Activities

Members of the department are increasingly involved in identifying research projects in occupational therapy. Faculty members are investigating extended applications of occupational therapy techniques with developmental and diagnostic groups for which there is minimal documentation. These investigations include developing screening instruments and corresponding assessment tools for pediatric, geriatric, psychiatric, and physical rehabilitation populations; investigating alternative methods of occupational therapy interventions with identified populations; and determining the validity, reliability, and applicability of both evaluation and treatment approaches. Research activity is also occurring in areas related to departmental productivity and interdepartmental relationships. Other faculty are involved in educational research arenas which includes the study of admissions processes; clinical supervision; clinical student performances; and educational needs of practicing therapists.

Service Activities

Members of the department provide a full range of assessment and therapeutic services for a variety of diagnostic and developmental populations. Occupational therapy services cover acute and chronic inpatient and outpatient psychiatry; pediatrics, including neonatology, developmental disorders, behavioral and emotional disorders, and learning disabilities; adult physical rehabilitation; geriatrics; and alcohol intervention programs. There are several subunits within each of these areas, and, within each unit, therapists use innovative occupational therapy interventions.

Department of Religion and Health

Educational Activities

The department provides humanistic and theological studies within the colleges, research in the area of religion and health, and an accredited program in clinical pastoral education (CPE) for pastoral personnel.

The Bishop Anderson Professorship has been established for teaching in religion and health. The Department of Religion and Health teaches primarily in the areas of thanatology, ethics, the relationship between religion and illness, and family dynamics. In addition, the department emphasizes the philosophy of medicine.

Accredited by the Association for Clinical Pastoral Education, the department offers basic, advanced, and supervisory education in pastoral care. This program is oriented to graduate theological students, pastors, members of religious orders or other health personnel who are interested and involved in pastoral care and counseling in the midst of a health crisis. Under faculty supervision, students carry direct responsibilities for ministry in patient care areas on an ecumenical basis, which includes a sensitivity to particular parochial practices. Students use clinical pastoral education in preparation for parish ministry, chaplaincy, teaching, pastoral counseling, or clinical pastoral education supervision.

Basic Clinical Pastoral Education. An intensive 11-week introduction to pastoral care, basic CPE focuses on models of ministry and their effect in patient care. Viewing the patient as a partner in learning, students engage in theological reflection, use pastoral resources with patients and health personnel and work toward a better understanding of the interaction between theology and behavioral sciences in interpreting the human condition. Students may be accepted for this course from any discipline or field of study. The course descriptions in religion and health found in the *Rush University Bulletin* are built on the experience of teaching the materials to theological students. However, there is no inherent difficulty in incorporating nontheological students into the course.

Advanced Clinical Pastoral Education. Advanced CPE is a year-long residency program for persons who have already completed their basic theological degrees, have had pastoral experience and want a pastoral care specialization, such as certification as a chaplain

through the College of Chaplains, American Protestant Hospital Association. Students function as pastoral members of interdisciplinary health teams to develop the capacity to utilize their pastoral perspectives and competencies through a variety of pastoral encounters.

Supervisory Clinical Pastoral Education. Supervisory CPE is designed for qualified persons who have demonstrated pastoral professional competence and who want to specialize in supervision in preparation for certification with the Association for Clinical Pastoral Education. Students are helped to develop both a theory and theology of pastoral practice; a philosophy of CPE includes understanding the theory and practice of appropriate education models and using versatility in supervisory skills and methods.

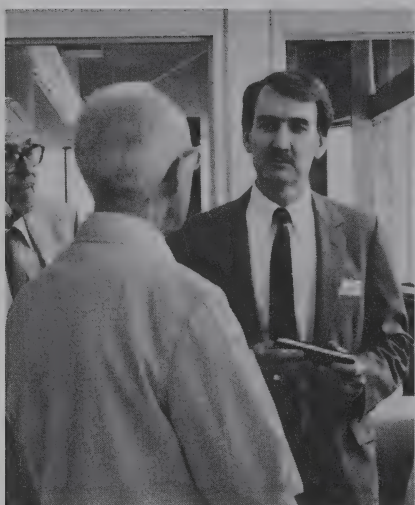
The program of religion and health is currently being developed to enlarge upon existing course offerings for interdisciplinary and clinical experiences within the various colleges of the University.

Service Activities

The Department of Religion and Health is responsible for providing pastoral care to patients, their families or supporting persons, and the staff personnel who serve them within Rush-Presbyterian-St. Luke's Medical Center. The department offers "round-the-clock" religious ministry to patients in the hospital, providing sacraments, church services, individual counseling and grief ministry to any person in need of them. It is available to support members of the student body and staff and to respond to emergencies when needed.

Research Activities

Until recently, the department had been functioning as a service and training department and had not been actively engaged in research. Research is now being incorporated into the training of CPE theological students. Areas being investigated include: attitudinal changes to life crises following educational process; faith systems and their effect on mobilization of physical resources; religious symbolism and patient/family support systems and acute grief behavior.



*John E Trufant, Ed.D.
Dean, The Graduate College
Vice President, Academic Resources*

"Great discoveries in health and medicine emanate from those who have the curiosity, the knowledge, and the discipline to seek the truth. They must also have the wisdom to synthesize the meaning of their work and the skill to transmit it. Through collegiality in education and scientific investigation, The Graduate College seeks to develop outstanding scholars who possess these critical characteristics."



THE GRADUATE COLLEGE

Philosophy

The Graduate College has been established to provide opportunities for students to work with selected members of the University faculty to earn graduate degrees with emphasis on the doctoral level in many of the sciences basic to health care. This limited goal, coupled with highly individualized programs, maximizes the students' opportunities for self-realization and the faculties' opportunities for sharing their scholarly development, expertise, and experiences on a personal basis. The organizational pattern allows a high degree of faculty and student participation in the educational affairs of the college. Each division's faculty members are active in basic medical research and education, providing opportunities for the advanced student to engage in a research program leading to the degree of doctor of philosophy.

The Graduate College faculty strives to provide individualized and flexible scholarly paths for its students. It avoids arbitrary imposition of uniformity and the encumbrance of unnecessary formality while simultaneously maintaining educational excellence. The faculty believes that such an environment permits independent thinking and high motivation for students' continued learning. Achievement of such a climate requires adaptation to the needs of students with the limitation in numbers of students implicit in such an approach.

Program

The Graduate College prepares students for the master of science and doctor of philosophy degrees. The doctor of philosophy is awarded in recognition of high achievement in a particular field of scientific research as evidenced by submission of a dissertation that demonstrates the power of independent investigation and contributes to the body of existing knowledge. An undergraduate record of scholastic excellence is an important background for The Graduate College experience.

The Graduate College also provides excellent research and educational opportunities for advanced students who want to enroll concurrently in The Graduate College and Rush Medical College.

The process of application review includes a search for evidence of creativity and scholarly potential in the applicant. Nondegree students are not admitted with advanced degree objectives and are ineligible to become candidates for advanced degrees. Upon approval by a course director, any individual may audit a course.

In all cases, a student considering application for admission should first establish contact with the director of his/her choice of program to determine divisional requirements.

The student must meet all of the requirements for progress and graduation in the division's graduate studies program. In this regard individualized studies will be programmed to meet the student's need in achieving essential knowledge in preparation for these requirements.

Admission. The faculty of The Graduate College encourages diversity among the student population and, therefore, seeks to admit persons from various backgrounds. Specific requirements for grade point averages, Graduate Record Examination scores and other objective criteria are determined by each division. Beyond those measures, the faculty attempts to determine the applicant's motivation and potential for advanced study and a research career in the sciences. The applicant's past research experiences are considered as well as other experiences that indicate a capacity and desire to perform both independently and cooperatively. In many cases, an on-campus interview will be required. Recommendations from previous faculty and others will be reviewed carefully. Applicants whose native language is not English should take the Test of English as a Foreign Language (TOEFL) and request that scores be submitted to Rush.

Once the admissions office has received all required documents, including the application fee, it forwards the application to the division for review. If the division does not wish to offer admission to the applicant, the division makes that recommendation to the dean, who will notify the applicant of the decision. If the division wishes to offer admission, the dean is notified, and he schedules a review of the applicant at the next meeting of The Graduate College Council. Application materials are forwarded to each member of the council in advance of the meeting. The division director presents the

candidate to the council. The council's decisions are communicated in writing to the applicant by the dean.

Organization. The Graduate College is one of four colleges of Rush University. In order to carry out its educational mission, the college is organized into divisions; each division represents a separate discipline and each is related to its parent academic department. Currently, the college has the following seven divisions: anatomical sciences, biochemistry, immunology, medical physics, pharmacology, physiology, and psychology. Graduate study in microbiology, currently emphasizing virology, is offered within the division of immunology. One additional multidisciplinary division has been formed in cell biology; however, no degree is offered in this field. The primary goal of each division is to provide excellent graduate education in the sciences basic to medicine. The divisions of The Graduate College are flexible and responsive to changing needs and experiences in their disciplines. To that end, the divisions are headed by directors who serve for definite terms of appointment and whose reappointments are subject to periodic review. Each division reports, through its director, to the dean of The Graduate College and is a member of The Graduate College Council.

The Graduate College Council is the senior representative body of the college. Its membership includes all division directors, three faculty members elected annually at-large from different divisions and two students elected by the students annually. The dean serves as the chairman of the council. The council is responsible for the admission of students; the formulation and adoption of general operating policies, standards and procedures of the college; the appointment of graduate college faculty and the approval of those recommended for degrees. Although the dean and council hold ultimate responsibility for programs of The Graduate College, the divisions of graduate study retain significant authority in structuring and administering their programs.

Doctor of Philosophy. The degree of doctor of philosophy (Ph.D.) is the highest earned degree conferred by Rush University. The Ph.D. is restricted to those scholars who have demonstrated superior ability in a recognized academic discipline.

While each graduate program has identified requirements, the Ph.D. is not awarded following the completion of any specific number of formal courses nor on the basis of miscellaneous course studies and research. The entire doctoral

program must be integrated and highly research oriented. It must culminate in a work of literary and scholarly merit, which is indicative of the candidate's ability to conduct original research in a recognized specialty. Ph.D. programs are directed by selected faculty who work closely with graduate students. In practice, each program is composed of formal courses, guided individual study in a chosen field or discipline, study in such cognate subjects as may be required by the candidate's advisory committee and original research that serves as the basis of a scholarly dissertation.

Thesis and Dissertation. A master's student must complete a thesis; a doctoral student must complete a dissertation. Both are developed through faculty-guided independent research projects.

Review of a thesis or dissertation will follow the sequence of steps described in the manual, *Preparation of Theses and Doctoral Dissertations*. Copies of this manual are available in each graduate division and in the Library of Rush University.

Academic Progression. Specific regulations governing the process that results in final awarding of the degree are developed by the graduate divisions responsible for the candidate's progress. While such regulations differ from one division to another, each division's program and regulations are reviewed and approved by The Graduate College Council. In all cases, graduate divisions are required to be explicit and clear about regulations that affect the candidate. This must be stringently observed in divisional regulations concerning selection of principal advisors, advisory committees, and a plan of study. Similarly, divisions will be explicit and clear concerning academic policies and procedures surrounding qualifying, preliminary and final examinations when they are required. The divisions are also responsible for providing the student with the support needed to plan and conduct the thesis or dissertation research.

At the same time, a major responsibility of the student is to become familiar with the regulations and expectations of his/her division. These regulations and expectations are included in the *Rush University Bulletin* within the section devoted to each divisional program and within program publications. It is considered to be the student's responsibility to remain knowledgeable about these program regulations as they are set forth; they may change from time to time.

Some divisional programs may require the student to take one or more courses at a university other than Rush. It is the responsibility

of the director of the graduate division concerned to make arrangements enabling satisfaction of such course requirements and to inform the student of such costs and special arrangements as may be necessary.

Academic Policies

(Additional policies are listed in the Academic Information section.)

The Graduate College Council adopts college-wide policies and procedures and reviews division regulations. Students follow the college and division policies in effect at the time of initial matriculation in The Graduate College although the effect of major changes in policy will be negotiated by the student and division director. Students reentering the college after an absence will be guided by policies and procedures in effect at the time of reentry.

Transfer of Credit. Subject to the approval of the major advisor and the division director, graduate level courses taken at other institutions may be applied to graduate degree requirements at Rush if they are judged to meet divisional requirements. Grades from courses transferred from another institution are not recorded on the student's academic record; the number of credits is recorded and added to the cumulative number of credits.

Credit Hours. Rush University is on a quarter system. The quarter hour is the unit used by the College of Nursing, the College of Health Sciences and The Graduate College to determine credit for courses taken. As a general rule one quarter hour represents one lecture hour, two hours of small group discussion or three laboratory hours per week.

Each quarter is at least ten weeks in length. An examination period is provided at the end of each term, and in most classes a final examination is given during this time.

Examination Policy. The examination policy is the responsibility of the individual course director who will inform students of examination requirements for that particular course. A period at the end of the quarter is provided for examinations. This period may be used as the course director chooses.

Pass/No Pass Grades. Each division identifies all required courses for its students. No required course may be taken under the pass/no pass option. With permission of the division director, electives may be taken for

pass/no pass grades. The master's thesis and precandidacy research are graded P/N. The grading policy for postcandidacy research (699) for doctoral students is determined by each division.

Incomplete Grades. The grade of incomplete (I) is normally given only when circumstances beyond the control of the student prevent completion of course requirements and the student has received permission to defer completion of these unmet course requirements. The course director shall determine what work will be required to remove the incomplete and shall establish a specific time within which the student must complete such work, not to exceed one calendar year. No student may graduate with an incomplete grade on his/her academic record.

Upon completion of the unmet course requirements a new grade will replace the incomplete grade. A student who fails to remove the incomplete grade within the specified time period will receive a final grade of F.

Academic Standing. Good Academic Standing. To remain in good academic standing, a student must maintain a cumulative grade point average of 3.0 and meet all requirements of his/her division. A student must be in good academic standing to be admitted to candidacy and to graduate.

Academic Difficulty. Each division has policies and procedures regarding students who fail to maintain good academic standing. While the responsibilities of informing students of their academic problems and of establishing conditions for regaining good academic standing reside with the divisions, The Graduate College Council monitors the progress and promotion of all students and gives final approval to award students' degrees.

Dismissal. Grounds for dismissal beyond minimal criteria established by The Graduate College are determined by each division. Should a division recommend the dismissal of a student, the director will forward such recommendation to The Graduate College Council for final action. Letters of dismissal come from the dean. Appeal of a dismissal action begins within the appropriate division.

Full-time Enrollment. Full-time enrollment is required of all graduate college students. Students must register for at least 12 but not more than 17 quarter hours per quarter. Students must obtain written permission for exceptions to this policy from the division director.

Residency. Years of residence required by divisional programs are based on the definition that a student must be registered for a minimum of three subjects in each of three quarters to satisfy The Graduate College requirement of a resident year. The Graduate College minimum residency required of all graduate students is registration as a full-time student for eight quarters of at least 12 credit hours each. Unless granted a formal leave of absence, graduate students who fail to register for three or four quarters in each academic year, depending upon divisional requirements, are considered to have withdrawn from the University and must compete for readmission with other applicants.

Extension of Study. Maximum enrollment for degree completion is seven calendar years. Any approved leave of absence will be excluded from this time. A student may petition for an extension of the overall time limit to the division director. If such an extension is granted, the student will be expected to enroll full time for each remaining quarter in residence. If a student proposes to maintain active status in The Graduate College while at another location, approval by the division director and The Graduate College Council will be necessary. Such a student will enroll each quarter with the registrar of Rush University for zero hours of credit, and will be charged the enrollment fee at the rate in effect at the time.

Leave of Absence. A student who wishes to leave the University for a period of time may submit to the division director a written request specifying the circumstances and period of time involved. All decisions regarding the conditions of the leave and of reentry into the program will be communicated to the student by the division. No leave of absence shall exceed one calendar year (see Academic Information section).

Withdrawal from the University. Students withdrawing from the University voluntarily must complete a form available in the Office of the Registrar. The student will obtain necessary signatures and return all Medical Center materials and the identification card. Withdrawal is final once all Medical Center bills have been paid and the completed form is submitted to the Office of the Registrar (see Academic Information section).

Readmission. Any student who has withdrawn from the University or any dismissed student may apply for readmission by submitting an application for this purpose to the admissions office. An interview may be required. A reentering student must meet the conditions for reenrollment stated in his/her dismissal or reentry acceptance letter and all policies, requirements, and course sequences in effect at the time of reentry. The student will pay tuition and fees at the rates in effect at the time of reenrollment. Application deadlines may vary by division.



Division of Anatomical Sciences

Philosophy

The Division of Anatomical Sciences offers programs of study at the master's and doctoral levels to prepare students for roles in teaching and research. A pedagogic component provides experience in gross anatomy, histology, and neuroanatomy sufficient for the student to be a confident participant in teaching, in the organization of courses, and in conferences in the medical setting. Advanced course work is available in cytology, embryology and developmental biology, regeneration, and the anatomy of joints. It is the goal of thesis and dissertation research to foster the student's conceptual growth as well as independence and resourcefulness in application of anatomical methods to the broader scope of a biomedical problem.

Admission Requirements

The Division of Anatomical Sciences seeks students who demonstrate in their previous educational experience motivation toward teaching and research as well as a capacity for independent study. The tutorial nature of graduate study in the Department of Anatomy requires that consideration be given to potential for the expansion of the student's area of interest with respect to the expertise and resources of individual faculty.

Applications are invited from students who have been awarded the baccalaureate degree; students who have satisfactorily completed other graduate work, or superior medical or other professional students at Rush who wish to pursue concurrent graduate study.

An undergraduate record with performance of at least a 3.0 (A=4.0) or equivalent level in the major field of study is required. The major, preferably in biology or chemistry, should include laboratory experience; courses in comparative anatomy and embryology are recommended. The Graduate Record Examination (GRE) is recommended in conjunction with either the biology or chemistry subtests.

Personal interviews are required of applicants whose credentials demonstrate acceptable academic and test performance. The purpose of this interview is to provide the applicant with a

better idea of departmental activities, and to assess his/her basic areas of interest.

Specific admission requirements may be waived at the discretion of the Graduate Advisory Committee in anatomy. Advanced placement credits, also subject to approval, are limited to a maximum of one academic year. Since the course cycle begins in the fall quarter, applicants are ordinarily expected to complete their files by May 1 preceding the intended date of admission.

Curriculum--Ph.D. Program

The first- and second-year curricula are devoted to anatomy course work and to complementary electives selected from cell biology, physiology, biochemistry, pharmacology, and immunology. Pedagogic experience in anatomy is provided through teaching assistantships during the second year.

An independent study during the second quarter of the first year is intended to help the student outline a preliminary project to be conducted in the summer following the first year. This project allows the student to apply anatomical methods to experimental objectives established in collaboration with a supervising faculty member. The project is intended to help the student develop lines of interest for additional elective course work and dissertation study.

Preliminary Examination. After completing the course requirements, the student must take the preliminary examination in order to qualify for degree candidacy. This examination emphasizes the student's ability to synthesize material, to solve problems and to communicate verbally and in writing. The first part of this examination consists of a written, comprehensive examination based on course material. The second part, an oral examination, is based on the student's dissertation proposal.

Dissertation Research. Upon completion of both parts of the preliminary examination, the candidate devotes his/her time entirely to dissertation research and writing. The dissertation must be based on an original experimental or applied study; its format and review must comply with requirements of The Graduate College. The candidate must finally defend the completed dissertation before his/her research committee.

Course Requirements. The program requires a minimum of 140 quarter hours of credit. The Division of Anatomical Sciences maintains a minimum residency requirement of eight quarters of full-time registration in The Graduate College. This residency requirement also applies to students who have received advanced standing.

Three advanced topics in anatomy (8-12 quarter hours total) are required. These are delivered as seminars, tutorials or, in some instances, as laboratory instruction. Courses offered by the Division of Cell Biology (CEL 501,

CEL 522 and CEL 571) are recommended so that four hours from this course series may be applied to the major advanced topic requirement.

The balance of elective hours are subject to approval by the Division of Anatomical Sciences. Two minor electives must be taken outside of the division. (See listing of requirements on the next page.)

Journal Club. Participation in the departmental journal club is expected each quarter. This club exposes students to current topics in anatomical research and provides

Suggested Curriculum: Anatomical Sciences

Fall Quarter	Year I		Doctoral Quarter Hours	Masters Quarter Hours
ANA 451	Histology		5	5
ANA 471	Human Anatomy I		7	7
ANA 501	Supplement to Histology		1	2
ANA 503	Supplement to Human Anatomy I		1	1
ANA 595	Journal Club		1	1
Winter Quarter				
ANA 472	Human Anatomy II		7	7
ANA 504	Supplement to Human Anatomy II		1	1
ANA 581	Approaches & Methods in Morpho- logical Research		2	2
ANA 595	Journal Club		1	1
	Elective		5	2
Spring Quarter				
NEU 451	Neurobiology		5	5
CEL 501	Cell Biology or Equivalent Course		2	2
ANA 505	Embryology		2	2
ANA 581	Approaches & Methods in Morpho- logical Research		2	2
ANA 595	Journal Club		1	1
	Elective		2	2
Summer Quarter				
ANA 595	Journal Club		1	1
	Research (Proposal Development)		13	13
Year II				
ANA 591	Teaching Assistantships		9	3
ANA 595	Journal Club		3	3
	Electives		14	2
followed by Written Comprehensive Examination and Thesis Proposal				

opportunities to discuss problems with established investigators.

Degree Requirements	Doctoral Program	Masters Program
Core Anatomy Courses	32	22
Electives	21	11
Teaching Assistantship	9	3
Journal Club	6	6
	68	42
Research	72	13
TOTAL HOURS	140	55

Master's Program

A master of science degree with a major in anatomical sciences is offered for individuals seeking advanced study without the full commitment to doctoral study. This is primarily a concurrent degree program for Rush medical students although outside applicants will be considered. Flexibility of this program permits students to pursue cross-disciplinary research in other departments where a structural biology problem is involved.

The program consists of six quarters of study and requires a research thesis. On the recommendation of the program director, a student may petition for admission to the doctoral program.

M.D./M.S. or M.D./Ph.D. Program

The exceptional student with a research or academic orientation may wish to pursue concurrent graduate study. Coordination of graduate with medical studies is especially feasible in the Division of Anatomical Sciences since introductory course work can be satisfied within the medical curriculum.

Although master's degree requirements can be completed within the four year medical curriculum, the Ph.D. requires an additional commitment of at least two years. Arrangements with the medical school can be adapted to suit individual needs.

Academic Policies

(Additional policies are listed in The Graduate College and in the Academic Information sections.)

Assessment of Progress. The student's progress will be assessed continuously based upon performance in the courses taken and upon evaluations by the Graduate Advisory Committee in anatomy.

Good academic standing requires maintenance of a cumulative grade point average of 3.0, with the expectation that students earn B grades in the major anatomy courses. An outline of specific policies relevant to the preliminary examination and dissertation defense may be obtained from the program director.

Guidance. Each entering student is guided in his/her course of study by the program director, with the assistance of the Graduate Advisory Committee, until the student determines a course of dissertation scholarship and selects a research advisor.

The research advisor, who must hold an appointment in the Division of Anatomical Sciences, ensures that the student's graduate course work satisfies requirements of the division and The Graduate College; assists the student both in the development of a dissertation proposal and in dissertation research and obtains necessary laboratory and funding resources to complete the student's study.

Research Activities

Modern research and teaching areas in the Academic Facility have been designed specifically to meet the needs of both basic medical science education and research with accessibility to scanning and transmission electron microscopes and a bioinstrumentation laboratory. Individual faculty are available to discuss their research interests with prospective applicants and to provide information on current activities.

The opportunity exists for students to establish cross-disciplinary programs with affiliated clinical departments, such as the Department of Ophthalmology or the Department of Orthopedic Surgery, which has one of the major gait laboratories in the country.

Research in neurobiology is focused on cellular responses to nerve injury and repair (Kerns, Jacob, Durica). Mechanisms of pattern formation and histogenesis are being studied in regeneration of amphibian limbs (Dinsmore). Damage produced by inflammation and by microvascular pathology is being studied in

relation to the pathology of eye disease (Hughes). Structural and physiologic studies on the lens are directed to the function of membrane specializations in cell communication (Kuzak). The organization of the red cell membrane is being studied in relation to pathological deformations and the cytoskeletal

components of the erythrocyte (Khodadad). The pathophysiology of the synovial joint and articular cartilage is being studied in experimental models (Williams, Cole). Biomechanical studies on locomotion in health and disease are conducted in the gait laboratory (Andriacchi, Sumner).



Division of Biochemistry

Philosophy

The department has defined its goals in regard to its graduate program on the basis of the expertise of its faculty members. They may be stated as follows:

to provide high quality education, practical training, and research opportunities to students who are interested in practicing biochemistry in one of the following three areas: basic and applied research in molecular-medical biochemistry; research in the biochemistry of cell function and clinical biochemistry--both in the service laboratory and in investigating the factors involved in the etiology of disease.

In other words, the goal is to develop health care professionals who will substantially improve health care delivery to the public.

Research strengths and other expertise of the department lie in certain well-defined areas, such as mammalian tissue culture methodology, basic research in connective tissue, metalloelement biochemistry, and clinical biochemistry. "Medical biochemistry" is perhaps the most fitting single term that can describe the department's scholarly direction. The tissue culture or cell biochemist attempts to explain how cells interact with their environments and with each other and what causes changes in a cell's physiology, thus making it malignant or aberrant in another way. The classical biochemist, on the other hand, is concerned with fundamental biochemical processes on the molecular level, such as the mechanism of collagen biosynthesis and degradation. It is the classical biochemist's discoveries that are often applied by the clinical biochemist and the cellular biologist to advance their own fields of endeavor.

Clinical biochemists are frequently entrusted with the management and operation of laboratories in a hospital, university, medical school or a medical institute and, in that capacity, have the opportunity to interact with other health care professionals such as physicians and nurses. The clinical biochemist, through his/her research activities, furthers the understanding of the disease process in the human being.

Admission Requirements

Admission requirements include the following:

- a bachelor's degree in any scientific area. Specific course requirements are as follows: chemistry--one year each of general chemistry and organic chemistry plus one course in quantitative analysis; biology--one year of general biology plus one year of intermediate or advanced undergraduate biology; mathematics through calculus, and one year of physics. A semester of physical chemistry is recommended but not required. Students may be accepted with less than the above minimum requirements with the understanding that such deficiencies are to be made up during the first year of graduate study and that such make-up work may prolong their residency at Rush.
- a minimum grade point average of 2.75 ($A = 4.0$) in all science and math courses taken
- Graduate Record Examination (GRE) aptitude test. There is no minimum score required. However, among equally qualified applicants, those with higher GRE scores will receive preference.
- letters of recommendation. Three letters are required from persons qualified to judge a student's potential as a scientist. The referee, whose comments will be taken most seriously by the Graduate Program Committee of the department, will have had extensive contact with the student as a teacher of science or a supervisor in a science-related work situation.

Students are normally admitted in the fall quarter, but the Graduate Program Committee may, at its discretion, recommend admission for the winter, spring or summer quarter.

Curriculum

Introduction. To meet better the objectives delineated above, the curriculum has been formally divided into three tracks: molecular-medical, supramolecular, and clinical biochemistry. The admission requirements are identical for all three tracks, and the first-year and a part of the second-year course sequence are identical for all students (see chart).

Suggested Programs Satisfying Minimum Requirements for the Doctorate in Biochemistry

Year of Study	<u>Molecular-Medical Biochemistry</u>			<u>Clinical Biochemistry</u>			<u>Supramolecular Biochemistry</u>		
	F	W	S	F	W	S	F	W	S
1	BCH 501 (6) PHY 451 (5) BCH 595 (1) BCH 699 (1)	BCH 502 (6) PHY 452 (5) CEL 501 (2) BCH 595 (1)	BCH 502(5) BCH 581 (4) BCH 595 (1) BCH 699 (2)	Identical to Molecular-Medical Biochemistry Track			Identical to Molecular-Medical Biochemistry Track		
2	IMM 501 (5) PHR 501 (5) BCH 590 (3) BCH 699 (1)	Elective (4-5) BCH 590 (3) BCH 595 (1) BCH 595 (1)	Elective (4-5) BCH 590 (3) BCH 595 (1) BCH 699 (2)	BCH 611 (3) IMM 501 (5) PHR 501 (5) BCH 595 (1)	BCH612 (3) BCH614 (3) BCH 595 (1) BCH 699 (5)	BCH 613 (3) BCH 615 (3) BCH 595 (1) BCH 590 (3) BCH 699 (2)	BCH 621 (3) IMM 501 (5) PHR 501 (5) BCH 595 (1)	BCH622 (3) BCH624 (3) BCH 595 (1) BCH 699 (5)	BCH 623 (3) BCH 625 (3) BCH 595 (1) BCH 590 (3) BCH 699 (2)
				Preliminary Examination					
3	BCH 590 (3) BCH 699 (9)	BCH 590 (3) BCH 699 (9)	BCH 590 (3) BCH 699 (9)	BCH 590 (3) BCH 699 (9)	BCH 590 (3) BCH 699 (9)	Elective (3) BCH 699 (9)	BCH 590 (3) BCH 699 (9)	BCH 590 (3) BCH 699 (9)	Elective (3) BCH 699 (9)
4	BCH 699 (12)	BCH 699 (12)	BCH 699 (12)	BCH 699 (12)	BCH 699 (12)	BCH 699 (12)	BCH 699 (12)	BCH 699 (12)	BCH 699 (12)
	Students may register for elective didactic courses beyond those required at any time after consultation with their advisers and track coordinators.			Credit hours for BCH 599 would be correspondingly lower when these electives are taken.			Electives that are strongly recommended are in the areas of microbiology-virology, statistics, data processing, and radioisotope techniques.		

In summer quarters students normally register for 12 quarter hours of BCH 699, although didactic courses such as BCH 590 might also be offered occasionally.

Following this period, during which the students take their basic biochemistry theory and laboratory techniques, immunology, cell biology, pharmacology, and physiology, the students become involved in formal instruction in their specializations. These are finished by the end of the second year of graduate study. During the summer following the second year of residence, the student normally takes the preliminary examination, which is designed to test the fundamental knowledge developed during the first two years in graduate school. If the examination is passed, the student proceeds to concentrate on his/her research, although taking further formal electives in the student's area of interest is strongly encouraged. The dissertation sequence involves the presentation of a proposal to the dissertation research committee and dissertation examination by the dissertation examination committee.

Required Didactic Courses. Any portion of this may be waived on a case-by-case basis by the Graduate Program Committee.

All biochemistry tracks (molecular-medical, supramolecular, and clinical biochemistry):

BCH 501, 502, 503	17 quarter hrs.
PHY 451, 452	10 quarter hrs.
CEL 501	2 quarter hrs.

PHR 501	5 quarter hrs.
IMM 501	5 quarter hrs.
BCH 581	4 quarter hrs.
BCH 595	6 quarter hrs.
TOTAL	49 quarter hrs.

Additional requirements:

<u>Molecular-Medical Biochemistry Track Only</u>	
BCH 590	18 quarter hrs.
Electives	8 quarter hrs.

<u>Clinical Biochemistry Track Only</u>	
BCH 611, 612, 613	9 quarter hrs.
BCH 614, 615	6 quarter hrs.
BCH 590	9 quarter hrs.

<u>Supramolecular Biochemistry Track Only</u>	
BCH 621, 622, 623	9 quarter hrs.
BCH 624, 625	6 quarter hrs.
BCH 590	9 quarter hrs.

Minicourses The department offers, from time to time, short intensive courses in specialized areas of biochemistry presented by visiting or local faculty members. Students register for one hour credit and spend ten hours in the classroom.

Academic Policies

(Additional policies are listed in The Graduate College and in the Academic Information sections.)

Admission and Initial Progress. Upon being admitted to the program, the student follows the prescribed course work during the first year. As soon as possible after matriculation, the student decides which track he/she will follow and selects a principal advisor. If during the first two years a mutually agreeable advisor cannot be found, the student must leave the program. At any time during the first year, the student may begin his/her research program with the advice of his/her advisor.

Preliminary Examination. This examination is given to students normally after a two-year period in the program. If this examination is passed, the student formally presents his/her project to his/her dissertation research committee. The preliminary examination, designed to test the student in the fundamentals of biochemistry and related basic medical sciences pursued in the first two years of the program, consists of written and oral portions. The student's advisor, with the consent of the track coordinators, recommends to the Graduate Program Committee that the student is ready to take the examination. The latter appoints the membership of an examining committee of six professors, with the student's advisor as chairman and at least two members of the committee who are from outside the department. The examining committee, when approved by the chairman of the department, constructs and administers the written portion of the preliminary examination to the student and follows this with an oral examination. The results of the written and oral examinations, taken as a whole, determine if a student has passed the preliminary examination. The chairman of the examining committee informs the Graduate Program Committee of the result. If the student has not passed, a report by the examining committee, signed by all members thereof, describes the committee's recommendations (e.g., the student should not be allowed to continue in the doctoral program, the student should be given another opportunity to retake the preliminary examination after appropriate remedial work, or another course of action deemed appropriate in a particular case). The Graduate Program Committee transmits the examining committee's recommendation with or without its own comments to the chairman of the department for approval.

Dissertation and Dissertation Examination.

After the student passes the preliminary examination, the Graduate Program Committee, with the approval of the chairman of the department, appoints a dissertation research committee consisting of the student's advisor, the two track coordinators and two professors, one of whom must be from another department, to guide the student's research progress. The student submits to the dissertation research committee a research proposal specifying his/her research objectives, methodology to be used, and significance of the project. If the proposal is approved, the approval is transmitted to the Graduate Program Committee. If not, the student and his/her advisor are asked to revise the proposal.

When the research project has achieved the desired objective as judged by the student's dissertation research committee, the student compiles the first draft of his/her dissertation. This is conveyed to the Graduate Program Committee. If the quality of the work is deemed adequate, the Graduate Program Committee, with the approval of the chairman of the department, appoints a dissertation examination committee for the student. It is anticipated that the dissertation research committee with one or two additions will also function as the dissertation examination committee. The dissertation examination committee guides the student in preparing the final form of his/her dissertation and administers an oral examination, where the student is required to defend his/her work. At the discretion of the dissertation examination committee, the student may be requested to present a seminar in lieu of the defense examination. The dissertation examination committee reports its decision (pass or no pass) to The Graduate College Council which recommends that the student graduate if the defense is successful. In case of a no pass, the chairman of the dissertation examination committee is to prepare a report with a recommendation for further action.

Quarter Hours Required. A full-time graduate student is registered for 12 or more hours of credit each quarter. A total of 146 quarter hours with approximately 12 hours per quarter in residence is required for graduation. The Graduate Program Committee may, at its discretion, recommend a waiver to The Graduate College Council of any portion of this requirement for students with previous graduate work at Rush or elsewhere.

Grade Requirements. Students must maintain a GPA of 3.0 in order to remain in the program, to be admitted to the preliminary examination and to graduate. Electives, required non-departmental courses, seminars, and research courses may be graded pass/no pass. All departmental courses must be taken for a letter grade. At the end of each academic year, the student's academic progress is reviewed by the Graduate Program Committee. If the GPA is below 3.0 or if a student has an unresolved failure(s) in a required non-departmental course, the committee may put the student on probation by giving the student an opportunity to correct the deficiencies within two succeeding quarters and, if the student does not correct the deficiencies within that time, dismissal shall be mandatory. Alternately, the committee may recommend the student's dismissal from the program. A student receiving a failing grade in a nonrequired elective is reviewed by the Graduate Program Committee to decide how the failure is to be rectified.

Time Limit. For the completion of the doctoral program no more than seven years shall be required though quarter by quarter extensions may be granted via petition to the Graduate Program Committee.

Research Activities

The faculty of the Department of Biochemistry is currently involved in several areas of investigation. Some of these research programs are joint efforts with other departments, giving the student an opportunity to interact with researchers of other disciplines as well as clinicians. Major research areas are the following:

- connective tissue biochemistry focusing on the structure and function of the various molecular components such as proteoglycans and collagen
- liver biochemistry involving the study of liver regeneration and various changes in serum in response to liver disease
- the biochemistry of human milk proteins and other components, particularly those showing growth-promoting activity toward *Bifidobacteria*
- iron metabolism in mammalian as well as microbial systems

- cancer biochemistry, paying particular attention to the control of tissue invasion by tumors, and the mechanisms of tumor induction in the prostate and breast
- the biochemistry of the fibrinolytic system studying the plasminogen activators from tissues
- endothelial cell physiology, including the interaction between platelets and the cellular and molecular elements of the blood vessel, the involvement of prostaglandins in the thrombotic process and cardiovascular disease and the regulation of endothelial cell proliferation
- studies on the structure and synthesis of the red blood cell membrane lipids
- neurochemistry concentrating on the role of various drugs in combating cerebrovascular disorders
- application of biochemistry to medical problems

Industrial Experience

Selected students will have an opportunity to spend a quarter in a basic science research laboratory of a participating pharmaceutical company or another recognized institution for research or higher learning in the United States or Europe. The students will be selected for such experience through guidelines established by the department.

During his/her tenure in the outside laboratory or institution, the student will register for BCH 585 (5 hours) and BCH 699 (7 hours).

Service and Clinical Activities

The department has several faculty members who are involved in the operation of hospital clinical biochemistry laboratories and who perform basic and development research in the area of clinical biochemistry. Such laboratories are available for student training and, on a limited scale, student employment. Clinical biochemistry track students will receive a major portion of their training in the various clinical biochemistry laboratories now served by the department's faculty members.

Concurrent M.D./Ph.D. Program

A student may apply for admission to the concurrent M.D./Ph.D. program in biochemistry either at the time of medical college application or later, after admission, while enrolled in the medical college. No student will be admitted to

the graduate program before being admitted to the medical college.

The program is tailored to an individual student's needs. Normally the student first takes the required preclinical courses at Rush Medical College and passes the National Board of Medical Examiners (NBME) Part I Examination. The student may then begin work in the graduate program, which would normally last for two to three years. Following the completion of graduate work, the student resumes medical studies in the clinical clerkships. Alternatively, the medical student may complete the medical school requirements for graduation before starting work toward the Ph.D. degree.

The participant in the concurrent M.D./Ph.D. program will be expected to fulfill the same divisional requirements as the Ph.D. student: formal course requirements at the appropriate grade level, passing of the preliminary

examination, and the submission of a high quality dissertation based on original research work.

Many formal course requirements for the Ph.D. degree will be met by taking the prescribed Rush Medical College courses (e.g., biochemistry, pharmacology, physiology, immunology, and electives); however, these courses will be evaluated by letter grade rather than on the honors, pass, fail system.

The manner in which the student will meet any additional formal course requirements as specified by the Graduate Program Committee will be determined on an individual basis. It is expected that all course requirements will be met by the M.D./Ph.D. program participant during the first year in the graduate program and that the preliminary examination will be taken at the end of the first year. The remainder of the student's time is to be spent in research activities. The overall M.D./Ph.D. program would normally require six to seven years to complete.



Division of Cell Biology

Service

Through its director, the division assumes the professional administrative responsibility for the electron microscopy laboratory of The Graduate College and its program. Training in use of the equipment is available at all times for those using the facility for research purposes.

The Program

Generally, cell biology explores the structural organization and functional integration within cells. As a field of study, its knowledge and techniques extend to all the specialized fields of the health sciences. The purpose of the Division of Cell Biology is to supplement understanding of such basic knowledge and techniques for students in the health sciences. The division encourages integration of the resources of people and facilities throughout Rush University to produce a comprehensive study of the cell. Such a purpose must be multidisciplinary, for cell biology spans many departments within the University, including anatomy, biochemistry, immunology, microbiology, pathology, pharmacology, and physiology.

Historically, the electron microscope has had a major impact on the growth of cell biology. The teaching of the division is centered on the electron microscopy laboratory of The Graduate College. Students will study the ultrastructure of the cell and its organelles in electron micrographs. But it is most important that they learn about the function of the organelles in a multidisciplinary fashion. Thus, the supramolecular structure and molecular organization of the cell constituents are emphasized. Advanced students will learn the technical skills necessary for pursuit of research projects involving cell and molecular biological techniques. Teaching is organized with courses in cell biology and electron microscopy. Students taking such courses may use them as credits toward their Ph.D. requirements in other graduate divisions of Rush University, subject only to the regulations of those divisions.

Courses

The courses are available to graduate students within the graduate, medical, nursing (i.e., graduate nurses) and health sciences colleges, subject to demand and limitation.

Division of Immunology

Philosophy

The goal of this program is to train investigators who will contribute to the advancement in understanding immunological and microbiological mechanisms in health and disease.

Admission Requirements

Students who have received the baccalaureate, master's or doctoral degree may apply. It is recommended that students wishing to enter the immunology program should have achieved a high level of competence in biology, mathematics, and chemistry. It is important that applicants be adequately prepared to engage directly in graduate study and research.

Candidates usually enter the program in the fall quarter; applications should be submitted as early as possible and no later than April 1. Applications will be evaluated as they are received.

Applicants for admission to the program will be evaluated initially by the departmental admissions committee and then the departmental faculty. Final approval for admission will be made by The Graduate College Council. Considerations for admission will include overall academic record, the recommendations of the sponsors, results of a recent Graduate Record Examination or its equivalent, and the description of the applicant's aspirations and interests. Personal interviews will be arranged for potential candidates after the preliminary screening. Students will be admitted into the program at levels other than first year only under exceptional circumstances; this will require approval by the faculty of the Division of Immunology and by The Graduate College Council.

Curriculum Requirements

A core program of courses encompassing major aspects of immunology and microbiology given concurrently with laboratory tutorials and predissertation research comprises the first two years.

Courses in basic immunology and microbiology, biochemistry, molecular genetics, cellular immunology, virology, the biology of membranes, and molecular immunology are required. Additional advanced courses may be

selected from the following: immediate hypersensitivity, inflammation, clinical immunology, clinical microbiology, and host defense.

Academic Policies

(Additional policies are listed in The Graduate College and in the Academic Information sections.)

General Information. A minimum of three years of full-time study (four quarters per year) and research, or the equivalent in part time, is required to satisfy the residency requirements of this program.

Upon admission each student will be assigned by the program director to an individual tutor who will be responsible for guiding the student's academic activities during the first 12 months when the selection of a principal advisor for dissertation research should be made. During the first 12 to 24 months the student will carry an academic program designed for his/her own requirements through frequent discussion with his/her tutor and principal advisor and with the Graduate Advisory Committee. This program should provide the student with a thorough grounding in immunology, microbiology, and appropriate related basic sciences and practical experience in several laboratories of the division faculty. Following the demonstration of competency, encompassed by the core curriculum and other elective courses, and acceptance of the dissertation proposal, students will essentially devote themselves full time, with participation in general departmental activities, to their dissertation research. The research program will be carried out under the guidance of a designated principal advisor and a dissertation committee. Following agreement by the student, advisor and dissertation committee that a suitable stage in the research program has been reached, the student will prepare and present a dissertation demonstrating the ability to carry out a research program and make original contributions to the area of investigation.

All students must meet the basic requirements of The Graduate College. Passage of the preliminary examination as partial fulfillment for entrance into candidacy for the Ph.D. degree is dependent upon demonstrated competence in scientific areas related to the field of

immunology. This can be achieved by participating in the recommended core program of lecture and tutorial courses of both a basic and advanced nature which may be supplemented by independent study. Other requirements, as specified by the student's dissertation advisory committee, may be met by completion of lecture, tutorial or laboratory courses in this and in other divisions of The Graduate College.

Courses in cell biology, pharmacology, histology, pathology, and statistics are considered relevant to training in immunology; these are available as part of the student's academic program but are not considered essential for all students. It is possible that courses in some subjects considered essential for a particular student's academic program will not be available in The Graduate College. Such requirements may be met either by special arrangement with the faculty of other institutions or by enrolling in such courses available at other institutions within the geographical area. Faculty assistance in the identification of these courses and supporting tutorial instruction will be arranged. Involvement also is required in the immunology/microbiology department research conferences and journal clubs.

Assessment of Progress. The academic progress of each student is continuously assessed by each faculty member with whom the student has worked. The use of conventional examinations is encouraged but is not required, and instructors are free to use whichever system of assessment they wish to apply, provided their criteria are made explicit.

To be in good academic standing, a student must maintain a cumulative grade point average of 3.0 (A=4.0) or better. A student whose cumulative GPA falls below 3.0 will be placed on probation. A student on probation must attain a cumulative GPA of 3.0 within two quarters (excluding summer quarter).

A student who receives a grade of C in more than two required courses will also be placed on probation. For any student on probation, failure to regain good academic standing within two quarters constitutes grounds for dismissal.

Evaluation of the overall progress of a student is based on reports received biannually from the tutor or principal advisor and the student's dissertation advisory committee. The reports describe the status of academic achievement, the progress of research and laboratory activities, and identify the projected requirements for the remainder of the program.

It should be stressed that the purpose of such assessment and examination is primarily to aid

the student in achieving academic goals by determining depth of understanding of the several areas of study and, when necessary, by identifying problems in order to enlist the aid of other faculty to assist the student in his/her training. Considerable importance in this continuous assessment is placed on the student's ability to communicate. Guided development of the skills required for both literary and verbal presentation of knowledge and ideas, as well as their formulation, is an important responsibility of the faculty in this program.

Preliminary Examination. A comprehensive written preliminary examination is given at the end of the second year of study. This examination covers the recommended core program of courses and successful completion is required for proceeding into candidacy.

Graduate Advisory Committee. A committee consisting of three elected faculty members, the chairman of the Department of Immunology/Microbiology and the division director (appointed by the chairman) shall participate in the administration of this program. The functions of this committee are: to assist each student in the design of an appropriate academic program; to guide both the student and faculty in advisor selection and in the appointment of the dissertation advisory and dissertation examination committees; to ensure the continued satisfactory progress of the student; and to initiate any necessary changes in or additions to this program. The Graduate Advisory Committee also shall review biannually the progress of each student throughout the program and shall report annually to the faculty of the division on the progress of each student.

Dissertation Advisory Committee and Dissertation Proposal. It is expected that within four quarters of admission the student will have identified a specialty and a principal advisor with whom to carry out his/her research activities. Concurrent with the development of a research program and within 10 quarters of admission, the following three steps should be taken and accepted by the Graduate Advisory Committee for the student to be accepted into candidacy:

1. formulation of a dissertation advisory committee that shall have five or six members including the principal advisor, three or four faculty members and one "outside" individual with recognized expertise in the candidate's field of interest, selected jointly by the candidate and principal advisor. The outside individual, not a member of the division, should be a faculty

member of an institution of higher education, active in research in the student's area of investigation and willing to maintain active contact with and advise the committee and student concerning the progress of research training for the duration of the candidacy. When additional advisors are required, these also shall be members of the dissertation advisory committee. The chairman of this committee shall be an active member of the Department of Immunology/Microbiology. Each student will be required to meet with his/her dissertation advisory committee every six months.

2. presentation to and acceptance by the dissertation advisory committee of a dissertation proposal that should constitute a scholarly outline of work intended, leading to research that will contribute to existing knowledge. The proposal should include a review of the relevant literature, and a detailed outline of the proposed research demonstrating an understanding of the technical and theoretical aspects of the experimental protocols. The student will be required to defend this proposal before the dissertation advisory committee and, if indicated, the Graduate Advisory Committee. This document is considered a blueprint for a suitable dissertation project at the time it is prepared and accepted. Changes in project or strategy during the student's dissertation research may be made with the approval of the advisor and the dissertation advisory committee.

3. successful completion of course work identified in the student's academic program, and adequate performance in a written preliminary examination administered by the Graduate Advisory Committee.

Dissertation. Following admission to candidacy the student shall devote full time to research activities under the guidance of the principal advisor and dissertation advisory committee, and shall be actively involved in all the scholarly pursuits of the Department of Immunology/Microbiology, including tutorials, seminars and journal clubs. The student is expected to seek opportunities to gain experience in teaching and to be involved in the teaching activities of the faculty to the extent that this does not interfere with the progress of the research program.

A student must demonstrate research accomplishment and written communication skills by submitting two or more first-author research papers to refereed journals. The manuscripts may be incorporated into the student's dissertation.

Following at least four quarters of research activity and agreement by the student and the dissertation advisory committee that research progress is such that a dissertation may be prepared and presented, the Graduate Advisory Committee shall be notified. At least three months prior to the expected date of completion, a timetable will be set by the Graduate Advisory Committee providing a deadline for submission of the dissertation and times for presentation and defense of the dissertation. Additional examinations also may be required and a timetable will be established for these.

The Graduate Advisory Committee will appoint a dissertation examination committee for each candidate. The examination committee shall be composed of the dissertation advisory committee of the student and any additional members of the faculty of The Graduate College deemed appropriate. The dissertation examining committee may, through consultation with the Graduate Advisory Committee, request evaluation of the written dissertation by at least one scientist (external examiner) of international stature in the field of investigation who is not affiliated with Rush University.

The role of the dissertation examination committee is to evaluate the student based on the following: presentation and general defense of the scientific basis of the dissertation in an open lecture; reports of any external examiner(s) concerning the standard of scholarly research presented in the dissertation and an oral defense of the dissertation before the examining committee and approval of the written dissertation.

The dissertation examination committee may request additional examination of the student or evaluation of the dissertation before a recommendation on approval is made to the Graduate Advisory Committee. Upon agreement that the student has satisfactorily met the requirements for the award of the degree of doctor of philosophy, the chairman of the dissertation examining committee and the program director communicates their recommendation to The Graduate College. If within ten quarters following entrance into candidacy the student has not submitted a dissertation or the dissertation advisory committee has failed to notify an intent to submit a dissertation, the Graduate Advisory Committee may assume the role of dissertation advisory committee to evaluate the progress of the student and suggest modifications that would enable candidacy requirements to be completed within one calendar year. It is expected that students will complete the program in less (generally four to five years) than the seven-

year maximum period specified by The Graduate College. Requests to the division director and The Graduate College Council for extension of enrollment beyond this period will be considered only under exceptional circumstances.

Research Activities

Areas of current interest in which research training is offered include the immunobiology of the inflammatory response; the complement system, with special emphasis upon C-reactive protein and the acute phase response, and the proteins related to amyloid; immunopharmacology; cellular immunology, particularly cell-mediated mechanisms in inflammation; tumor immunology; immunobiology of transplantation; growth factors and receptors; the molecular genetics of antibody formation; mechanisms underlying the allergic response; immune interactions of cells and membranes. Also available is training in virology, including the transcription, replication, and final assembly of

negative strand RNA viruses, cellular receptors for human hepatitis B virus, the immunopathogenesis of AIDS; gene expression and pathogenesis of woodchuck hepatitis and herpes viruses, and avian reoviruses which cause arthritis. The application of basic research to questions of human health and disease is a general commitment of the faculty of this program.

The current annotated departmental research report is available on request.

Service and Clinical Activities

In addition to offering the graduate program and conducting active research programs, the department teaches immunology and microbiology to medical students, offers an allergy/immunology residency program, and maintains a close affiliation with the hospital's clinical immunology and microbiology laboratories.



Division of Medical Physics

Philosophy

The Division of Medical Physics offers two programs of study and research leading to a graduate degrees. The faculty members of the division are active in theoretical and experimental research in medical physics and its clinical applications. The diversity of interests of the faculty allows the division to offer graduate degree programs that can satisfy the interests and needs of students in several areas of medical physics: dosimetry; imaging applied to medicine; radiation sources; physics of radiation therapy; physics of diagnostic radiology; physics of nuclear medicine; and radiation protection.

The programs lead to the following degrees:

- Master of Science with a major in Radiological Sciences
- Doctor of Philosophy with Medical Physics as the area of interest.

In addition to the degree programs, the division offers postdoctoral training in medical physics for individuals who have doctorates in physics or physical science. The division also permits students at large to register for course work.

The counterpart Department of Medical Physics of the College of Health Sciences offers a master of science degree with a major in medical physics.

Admission Requirements

In addition to the basic requirements established by the Graduate College, the division of medical physics has requirements for admissions to its programs.

Radiological Sciences Master of Science Program. Applicants for admission to the division will be evaluated initially by the division director and the admissions committee. Considerations will include the applicant's overall academic record, evidence of previous ability to pursue independent studies successfully, recommendations from the applicant's former faculty, and a description of the applicant's scientific research interests. The program director also will determine whether additional supporting evidence would aid evaluation of the

application and, if so, will make appropriate arrangements with the applicant. An interview may be requested.

The Graduate Record Examination (GRE) is not required, although it is highly recommended that applicants take the verbal, quantitative, and the appropriate advanced tests. Further information regarding the GRE may be obtained from the Educational Testing Service, CN 6003, Princeton, New Jersey 08541-6003.

Applications for admission will be accepted by the division for any quarter of the year. Applicants to the program should have received an M.D. or D.D.S. degree from an accredited institution prior to enrolling in the program. The studies required for the master's degree may be carried out concurrently with a residency program provided prior approval is given by the chairmen of the departments and divisions involved. A cumulative grade point average of 3.0 (A = 4.0) is required.

Medical Physics Doctor of Philosophy Program.

The Division of Medical Physics seeks students who demonstrate motivation toward research and teaching, as well as a capacity for independent study in their undergraduate or graduate education. Applicants for admission to the division will be evaluated initially by the division director and the admissions committee. The division director will determine whether additional supporting evidence would aid evaluation of the application, and, if so, will make appropriate arrangements with the applicant. An interview may be required.

All applicants must meet the following criteria for admission:

- a bachelor of science degree in physics from an accredited college or university or
- a bachelor of science degree in physical science with a minor in physics from an accredited college or university
- completion of course work in physics--mechanics, heat, atomic and nuclear physics, thermodynamics, and quantum mechanics. If the student is deficient in physics courses, additional courses will be required.

- completion of one year of college chemistry with laboratory. This requirement may be satisfied within the Ph.D. program.
- prior success in pursuing independent study
- cumulative grade point average (GPA) of at least 2.5 in college work
- cumulative science GPA of at least 3.0 in college work
- results of the GRE taken within the last three years. Results should be directed to The Graduate College Admissions Office.
- three letters of recommendation from previous college or university instructors
- a written description of the applicant's scientific research interests

Applications for admission will be accepted for all quarters of the year. Incoming students with no graduate training should apply for the fall quarter due to the scheduling of required courses. Applications for the fall quarter will be accepted until March 1, and a decision will be sent to the applicant by April 15. Later applications for the fall quarter may be accepted if space is available. Students with research experience or medical school education may begin graduate study during any quarter of the year.

Curriculum

Radiological Sciences Master of Science Program. The Studies required for the master's degree may be carried out concurrently with a residency program, provided prior approval is given by the chairman of the department in which the resident is being trained. The Master of Science degree is designed to be completed by full-time students in one calendar year; part-time students will, of course, require more time. Each student will submit a thesis on his/her research and will take a final examination in defense of the thesis.

Residents in Therapeutic Radiology. The following courses are required for Residents in Therapeutic Radiology:

MPH 458, 459, 481, 482, 483, 484, 486, 492, 531

In addition to these courses, MPH 598, Thesis Research, is required. The sequence of courses

MPH 501, 502, and 503 may be chosen as electives in the master's degree program.

Residents in Diagnostic Radiology and Nuclear Medicine. The following courses are required for residents in diagnostic radiology and nuclear medicine:

MPH 458, 459, 460, 461, 464, 465, 471, 475, 490

In addition to these courses, MPH 598, Thesis Research, is required. The sequence of courses MPH 501, 502, and 503 may be chosen as electives in the master's degree program. Various other elective courses are available at Rush University.

Medical Physics Doctor of Philosophy Program. The Ph.D. program is based on a study and research schedule that should be completed within four to five years of full-time study beyond the bachelor's degree. The minimal residency requirement established by The Graduate College is eight quarters of full-time enrollment. During the first year, the student will be committed to completing required course work and deficiencies, if any. Elective courses in other divisions will be available throughout the program. During the second and later years, required courses will be completed, and the student will be encouraged to enroll in appropriate advanced courses within The Graduate College. Ordinarily, research will begin during the latter part of the second year, and it will continue as the primary activity throughout the third and later years.

The following courses are required:

MPH 457, 458, 460, 463, 465, 471, 482, 483, 486, 491, 501, 502, 503, 504, 505, 531, 542, 561, 571, 590, 699

PHY 555

ANA 465

A student may choose electives from a variety of other courses available at Rush University.

Academic Policies

Radiological Sciences Master of Science Program. A minimum of 48 quarter hours of required courses, including research, is required for the Master of Science degree with a major in Radiological Sciences. of these a minimum of 18 quarter hours of medical physics courses (excluding research) is required. A minor is not necessary in this program. Students must

maintain a cumulative grade point average (GPA) of 3.0. The maximum amount of credit acceptable for transfer from another institution is 12 quarter hours. There is no foreign language requirement. The time limit for completion of the program is five years.

Academic Progression. The graduate program director will function as the academic advisor to new students in the program. The director will determine the course schedule with the student and will monitor the student's progress.

As soon as practical after the student has entered the program, he/she should select the area of research he/she wishes to consider for the master's thesis. The student should seek out a faculty member of the Division of Medical Physics who will accept the supervisory role of scientific advisor.

Once an advisor is chosen, the advisor and the student will assemble an advisory committee of five members, at least three of whom are on The Graduate College faculty. The advisor will serve as chairman of the advisory committee. The committee will be responsible for adapting continued course work to the student's needs and for providing advice and evaluation at all stages of the graduate education. Specifically, the committee will evaluate the dissertation proposal, the dissertation, and the performance at the dissertation defense.

Before the specific thesis research is begun, a detailed proposal, including a literature review, must be presented to the student's advisory committee. At that time, the student will be required to defend the proposal orally, demonstrating an understanding of the goals and methods of his/her study. When the committee is satisfied with the proposal, the student may begin the research project. Although research will be closely supervised by the major advisor, attainment of the research goals is the student's responsibility.

Thesis Defense. Thesis. The thesis is a scholarly work based on an original project. Its format and review by the advisory committee and dean must comply with the requirements of The Graduate College.

Thesis Defense. The final examination may be taken upon acceptance of the dissertation by the dean of The Graduate College and must precede the projected date of graduation in accordance with a schedule determined by The Graduate College.

Oral defense of a thesis serves as the final examination in partial completion of the requirements for the M.S. degree. The

examining committee consists of a minimum of five faculty members approved by the division director and graduate studies committee. At least three examiners, including the student's principal and associate advisors, will be selected from within the division. Two examiners may be selected from outside the division, preferably, though not necessarily, from outside the division.

Passing the final examination is based upon the recommendation of the majority of the examiners. In the event that the student fails to pass the final examination, the student may appeal to the dean of The Graduate College who, upon consultation with all parties concerned, may recommend a course of action to be taken.

Medical Physics Doctor of Philosophy Program.

A minimum of 40 quarter hours of medical physics courses (excluding research) must be completed successfully. Additionally, at least 18 quarter hours of minor course credit are required. A grand total of 150 quarter hours of academic credit is required for the Ph.D. degree.

A maximum of 60 quarter hours of transfer credit will be accepted.

There is no foreign language requirement.

Academic Progression. The graduate program director will function as the academic advisor to the student during the first year. The director will, during this time, determine the course schedule with the student and will monitor the student's progress.

Toward the end of the first year, the student will be expected to take a qualifying examination that covers basic physics and courses in the division that have been completed. This examination includes written and oral components. Based on the results of the qualifying examination and performance in course work, the student may be permitted to continue in the program without conditions. If the student's performance is poor, he/she may be either permitted to continue with added requirements of a remedial nature or dismissed from the University.

During the second year, the student should select the area of research he/she wishes to consider for the Ph.D. dissertation. The student should seek out a faculty member of the Division of Medical Physics who will accept the supervisory role of scientific advisor.

Once an advisor is chosen, this advisor and the student will assemble an advisory committee of five members, at least three of whom are on The Graduate College faculty. The advisor will serve as chairman of the advisory committee. The committee will be responsible for adapting continued course work to the student's needs

and for providing advice and evaluation at all stages of the graduate education. Specifically, the committee will evaluate the dissertation proposal, the dissertation, and the performance at the dissertation defense.

Toward the end of the second year or at the beginning of the third year, the student will be expected to take a preliminary examination. The preliminary examination consists of a written comprehensive and an oral examination. This examination can only be given on the recommendation of the advisory committee after completion of all required courses and elimination of any deficiencies. Administered by the faculty of the division, the examination tests general knowledge of medical physics. The level of performance on this examination will determine whether the student is admitted to candidacy for the Ph.D. degree. Students who fail to gain admission to candidacy may be retested one time only, 6 to 12 months after the original examination date.

Before the specific dissertation research is begun, a detailed dissertation proposal, including a literature review, must be presented to the student's advisory committee. At that time, the student will be required orally to defend the proposal, demonstrating an understanding of the goals and methods of his/her study. When the committee is satisfied with the proposal, the student may begin the research project. Although research will be closely supervised by the major advisor, attainment of the research goals is the student's responsibility.

Dissertation Defense. Dissertation. The dissertation is a scholarly work based on an original project. Its format and review by the advisory committee and dean must comply with the requirements of The Graduate College.

Dissertation Defense. The final examination may be taken upon acceptance of the dissertation by the dean of The Graduate College and must precede the projected date of

graduation in accordance with a schedule determined by The Graduate College.

Oral defense of the dissertation serves as the final examination in partial completion of the requirements for the Ph.D. degree. The examining committee consists of a minimum of five faculty members approved by the division director and graduate studies committee. At least three examiners, including the student's principal and associate advisors, will be selected from within the division. Two examiners may be selected from outside the division, preferably, though not necessarily, from outside the University. Distinguished scientists may be invited as guests of the division to examine the dissertation and to participate in the final oral defense.

Passing the final examination is based upon the recommendation of the majority of the examiners. In the event that the student fails to pass the final examination, the student may appeal to the dean of The Graduate College who, upon consultation with all parties concerned, may recommend a course of action to be taken.

Research Activities

Research by medical physics faculty members includes: the study of basic mechanisms by which radiation transfers energy to biological and chemical materials; the development of new techniques for directing and measuring various radiations used in detection, diagnosis, and treatment of cancer; the application of radioactive tracers to diagnosis and to the study of metabolic processes; the optimization of physical parameters for specific studies in diagnostic medical imaging, including radiology, computerized radiography, and tomography, as well as nuclear magnetic resonance imaging and radionuclide imaging and dosimetry in radiation therapy, radiation protection, radiobiology, and hyperthermia.

Rush University issues an annual research report that summarizes research projects of the entire faculty.

Division of Pharmacology

Philosophy

The Division of Pharmacology offers study and research programs leading to the degree of doctor of philosophy. The division is composed of faculty members active in basic medical research, pharmaceutical sciences and clinical investigation. Such diversity of interest allows this division to design doctoral programs that satisfy the needs of students interested in most aspects of pharmacology. A program of study has also been created for students who wish to enroll concurrently in this division and in Rush Medical College.

The goal of the division is to provide excellent training in research and teaching. Each student has the opportunity to participate in research of the most basic chemical nature and in research aimed at solving disease problems. Emphasis is also placed on the development of drug analysis methods for research and as a practical laboratory problem in a service setting, especially as related to drug trials and other areas of clinical investigation. Teaching exposure is encouraged throughout the entire training period.

Admission Requirements

In addition to the basic requirements established by The Graduate College, the Division of Pharmacology has the following requirements for admission to its program. The academic experience of the student should usually include a minimal undergraduate GPA of 3.0 overall and a 3.5 in science courses ($A=4.0$). Recommended courses include calculus, college physics, organic chemistry, and physical chemistry. Students with deficiencies in basic course work can be admitted to the program. However, for any such applicant, the division will retain the right to require extra course work that will then be considered a prerequisite for admission to candidacy for the Ph.D. degree.

The Graduate Record Examination (GRE) is not required by the division although it is highly recommended that applicants take the verbal, the quantitative, the analytical, and the appropriate advanced tests.

Applications for admission will be accepted by the division for all quarters of the year. Incoming students with no graduate training should

consider applying only for the fall quarter due to the scheduling of the basic required course sequence. When applications are received before February 15, a decision will be sent to the applicant before April 15. Later applications for the fall quarter may be accepted if space is available. Students with research experience can begin graduate studies during any quarter of the year, and such applicants should expect to continue their research or begin an active research program within the division at the time of their admission. In either case, early application is recommended because of the small number of places available.

Applications will be evaluated by the director and the admissions committee of the Division of Pharmacology. The admissions committee will base its recommendation regarding admission of the applicant on several factors. All prior academic experience and the letters of recommendation will be evaluated for an indication of the applicant's potential for success in graduate studies. A statement by the applicant describing his/her own goals and motivation will be studied to determine the compatibility between the applicant's goals and the capabilities of the graduate program. With rare exceptions, all applicants will be required to appear for an interview with faculty members in the Division of Pharmacology before admission to the program. A recommendation from the division regarding the applicant's admission will be presented to the dean and The Graduate College Council for final approval.

Curriculum

This program is based on a study and research schedule that should be completed within three to six years of full-time study. During the first year the student is usually committed to completing required course work and eliminating deficiencies, if any. Elective courses in other divisions will be available throughout the program. During the second and later years, required courses are completed and the student is encouraged to enroll in appropriate courses within this and other divisions of The Graduate College. Research ordinarily begins during the first year and continues as the primary activity throughout the second and later years.

The required courses for all graduate students

in pharmacology are biochemistry, medical physiology, biostatistics, medical pharmacology, advanced topics, pharmacokinetics, laboratory instrumentation, experimental models in pharmacology and seminar.

Concurrent M.D./Ph.D. Program

The graduate program in pharmacology will be offered in the form described to the student who has been admitted to both the graduate program in the Division of Pharmacology and to Rush Medical College and who elects to begin both programs of study in the same year. During the first two years, the student will complete the required courses in the pharmacology graduate

program as well as the regular medical college curriculum for that period of time.

The student will then interrupt Rush Medical College enrollment and concentrate full time on graduate studies in the Division of Pharmacology. When the graduate work is complete, the student will continue with the clerkship program in the medical college.

The student will be strongly encouraged to begin a research program during the summer before course work begins. Research can be included in the curriculum at any time. After the second year, the student will begin full-time enrollment in The Graduate College, and the clerkship program in Rush Medical College will be delayed until the graduate work is complete. During this time, the student will complete the

Curriculum: Pharmacology

Fall Quarter	Year 1	Quarter Hours	Fall Quarter	Year 2	Quarter Hours
BCH 471	Medical Biochemistry I	6	PHR 501	Medical Pharmacology	6
PHY 451	Physiology	5	PHR 598	Research	5
PVM 541	Biostatistics I	4	PHR 691	Pharmacology Seminar	1
PHR 691	Pharmacology Seminar	1			12
		16			
Winter			Winter		
BCH 472	Medical Biochemistry II	6	PHR 502	Medical Pharmacology	3
PHY 452	Physiology	5	PHR 551	Pharmacokinetics	3
PVM 542	Biostatistics I	3	PHR 598	Research	5
PHR 598	Research	2	PHR 691	Pharmacology Seminar	1
PHR 691	Pharmacology Seminar	1			12
		17			
Spring			Spring		
PHR 521	Lab Instrumentation	3	PHR 598	Research	11
PHR 622	Experimental Models	4	PHR 691	Pharmacology Seminar	1
PHR 598	Research	4			12
PHR 691	Pharmacology Seminar	1			
		12			
Summer			Summer		
PHR 598	Research	12	PHR 598	Research	12
					12
				Minimum Required for Candidacy	105

required course work, enroll in advanced or elective courses, pass the comprehensive qualifying examination, present and defend a suitable dissertation protocol, complete dissertation research, and present and defend an acceptable dissertation. The Ph.D. degree will be awarded by Rush University upon the successful completion of this training program. The student will then continue with the clinical curriculum of Rush Medical College.

Students who are admitted to the Division of Pharmacology graduate program and to Rush Medical College but who do not begin these study programs at the same time may also benefit from this combined curriculum. An individual study program which includes available aspects of this curriculum can be designed for such students.

Students who enter this program are subject to the full conditions and requirements of both colleges.

Academic Policies

(Additional policies are listed in The Graduate College and in the Academic Information sections.)

Academic Progression. Academic Advisor, Major Advisor. The graduate division director functions as the academic advisor to the student during the first year. The director, during this time, determines the course schedule with the student and monitors the student's progress. Beginning in the first year, the student is expected to gain laboratory experience. This activity is intended to lead to the definition of research interests and to the selection of a major advisor. The major advisor, a faculty member in the Division of Pharmacology, then accepts the supervisory role in the development of the student as a scientific investigator.

Advisory Committee. After a major advisor is chosen, this person and the student assemble an advisory committee. The committee consists of five graduate college faculty members, no more than four to be from the Division of Pharmacology, including the major advisor who serves as chairman. This committee is responsible for adapting continued course work to the student's needs and for providing advice and evaluation at all points in the graduate education experience. Specifically, the committee evaluates the dissertation protocol, the dissertation and performance at the dissertation defense.

Comprehensive Qualifying Examination. Toward the end of the second year the student

usually is expected to take the comprehensive qualifying examination. This examination can only be given with the recommendation of the division director after elimination of all deficiencies and completion of all required courses. The examination is designed to test general knowledge in pharmacology, and it is administered by the Division of Pharmacology faculty. The level of performance on this examination determines if the student is admitted to candidacy for the Ph.D. degree. Students who are unsuccessful in gaining admission to candidacy for the Ph.D. degree may retest one time only, 6 to 12 months after the original examination date.

Dissertation Research. Before the specific dissertation research is begun, a detailed dissertation protocol, including a literature review, must be presented to the Advisory Committee. At this time the student is required to defend orally the research proposal by demonstrating an understanding of its goals and of the methods used to achieve those goals. When the committee is satisfied that these qualifications have been met, it recommends that the student begin the research project. Although the research is closely supervised by the major advisor, the student is expected to accept the responsibility for attainment of the research goals.

Once the research is complete, the student presents a reading copy of the dissertation to the advisory committee for its evaluation and comments. The committee is responsible for offering suggestions to the student on how the work may best be presented in a dissertation. Following this advice, the student completes the dissertation and makes a formal presentation of it to the Advisory Committee as the dissertation defense.

The awarding of the Ph.D. degree requires the demonstration of a capability for independent research and a contribution to scientific knowledge as judged by the Advisory Committee, the division faculty, the dean, and The Graduate College Council.

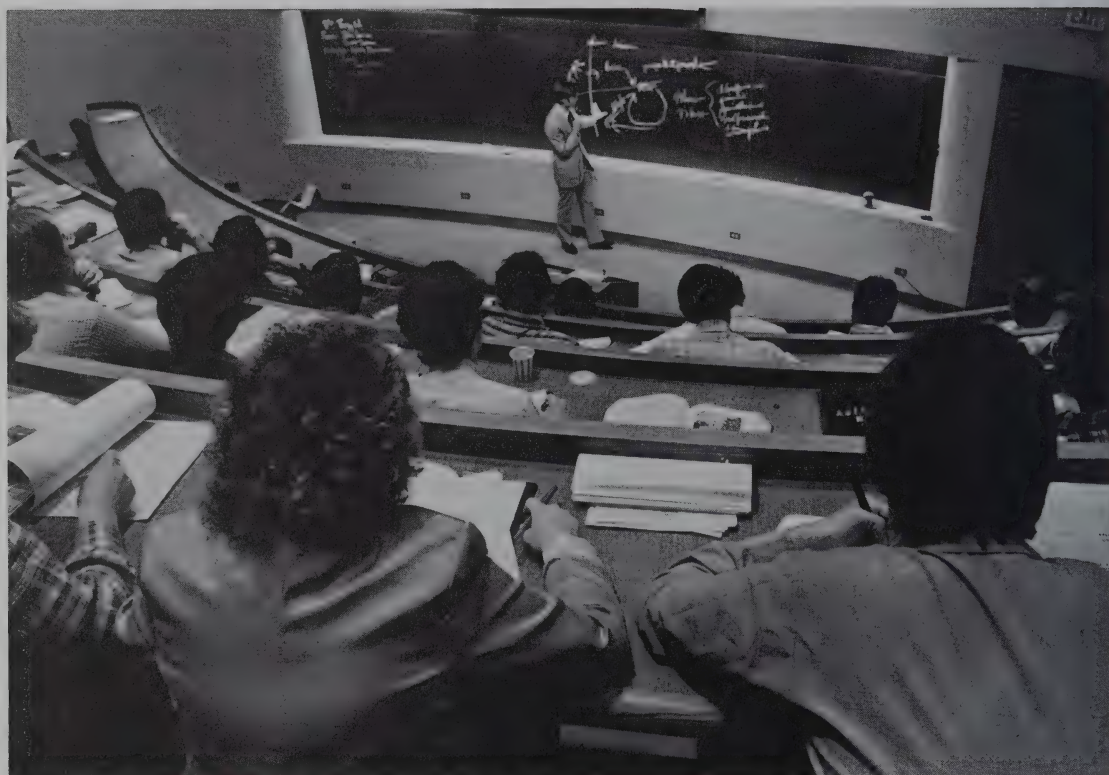
Research Activities

Research experience is being offered in the following general areas: drug effects on cellular metabolism, drug metabolism, pharmacogenetics, cardiovascular pharmacology, biochemical pharmacology, neuropharmacology, and clinical pharmacology. Current research projects that may be available to graduate students in the Division of Pharmacology include: mechanism of action of various redox drugs as

investigated by studies of red cell metabolism; hereditary and acquired disorders of the pentose phosphate pathway, glycolysis and hemoglobin; animal models of tardive dyskinesias; parkinsonism and related disorders; slow acetylation as related to drug effects and disease such as lupus erythematosus; clinical drug testing (Phase I and II) analgesic properties of cholinergic drugs in relation to the morphine receptor theory; pharmacology of primaquine and mefloquine; clinical pharmacology of methotrexate; prostaglandin metabolism in endotoxin shock; pharmacology of platelet activating factor and clinical pharmacology of new antibiotics and new drug assays.

Service and Clinical Activities

The graduate division includes faculty members who are involved in service and clinical research activities. The service laboratory designs and performs selected drug assays on patient samples for clinical cases where the monitoring of drug levels is necessary for effective therapeutics or to avoid toxicity. The Clinical Pharmacology Unit tests new drugs for toxicity and for effectiveness in human subjects. All students are encouraged to participate in these activities even though their interests may lie elsewhere.



Division of Physiology

Philosophy

The program of the graduate Division of Physiology provides state-of-the-art training in the most quantitatively oriented areas of modern physiology and biophysics. To this end a limited number of students are invited to join particular research laboratories as predoctoral fellows. Most of the training occurs in this setting. The sole goal of the faculty is excellence in research, and it expects to develop students who will become future leaders in the field.

Admission Requirements

Students who desire to specialize in this program are strongly advised to obtain a broad scientific foundation, including work in the related sciences. Courses in some or all of the following fields are suggested for attainment of this objective: physics, including electronics; chemistry, including physical chemistry; mathematics, including differential equations, and molecular and cell biology or cell physiology.

An applicant who holds a degree from an accredited institution will be considered for admission on the basis of the following criteria:

- an undergraduate record of superior quality demonstrating proficiency in quantitative science
- a well-organized plan for graduate study and research compatible with expertise in the division
- recommendations from at least three college faculty members acquainted with the character of the applicant
- ability to function in a program stressing an independent approach to the acquisition of knowledge
- other materials that may be required by the division director

The Graduate Record Examination (GRE) is recommended but is not required. Except in unusual cases, the minimum prerequisites for admission will be the attainment by the applicant of a 3.0 overall average ($A = 4.0$) in undergraduate studies with a 3.5 average in science courses, preferably including two years of physics or engineering, inorganic and organic

chemistry, physical chemistry, advanced calculus, ordinary differential equations, cell biology, molecular biology, or cell physiology.

Applicants for admission to the division will be initially evaluated by the division director and chairman. Considerations will include overall academic record, evidence of previous ability to pursue independent studies successfully, recommendations of the applicant's undergraduate faculty, and the description of the applicant's scientific research interests. The division director also will determine whether additional supporting evidence would aid evaluation of the application and, if so, will make appropriate arrangements with the applicant to submit such evidence.

Applications judged by the division director to demonstrate satisfactory credentials and interests compatible with the research facilities of the faculty will then be evaluated by all faculty members with expertise in the area(s) of interest of the applicant. Considerations in this phase will include not only academic ability but also the resources available to support research in the indicated area. An interview may be requested. Selection of applicants will be by invitation of a faculty member in the division willing and able to serve as the student's principal advisor and research sponsor after endorsement of the selection by the division director, The Graduate College Council, and the dean. In special circumstances, exceptions to this procedure may be made for students with unusual promise but with no firm commitment to a particular area of research. In such cases, the program director will serve as interim principal advisor. Finally, in the case that the division director would be the principal advisor of a student, the physiology department chairman shall assume the duties of division director with respect to that student.

Curriculum

Courses: Usually prior to starting the program students will have selected a faculty member as principal advisor. All students admitted to the division will be required to enroll in the medical physiology sequence as soon as possible after admission, and before the dissertation proposal, and obtain an average grade of B or better over all quarters. Each student will, in the first two years, enroll in courses appropriate to the

students research interests as agreed upon in consultation with the principal advisor and director of the graduate program.

It is anticipated that courses deemed essential to the student's graduate training by the division occasionally will not be available in the Division of Physiology or other divisions of The Graduate College. In this case, arrangements will be made for the student to enroll in such courses at other institutions and performance in these courses will be required to be at the same level as for courses at Rush. In certain circumstances, a program of supervised independent study may be recommended as an alternative to particular course work.

Individual course requirements may be exempted on the basis of a past academic record or by the successful completion of a special examination covering the content of the required course. Such exemptions will not be made automatically solely on the basis of a past academic history but will be carefully judged on an individual basis by the division director and Advisory Committee. It is expected that the typical student will enroll in eight credit hours of course work outside the Division of Physiology.

Course Offerings: The following courses will be available, subject to demand and limitation, to graduate students within The Graduate College.

- PHY 451 Physiology I
- PHY 452 Physiology II
- PHY 502 Introductory Membrane Biophysics
- PHY 503 Physiology of Striated Muscle
- PHY 504 Neurophysiology
- PHY 521 Mathematical Methods for Physiologists
- PHY 523 Circuit Theory and Practical Design
- PHY 531/532 Physiological Modeling
- PHY 555 Physiology of Cellular Homeostasis
- PHY 590 Special Topics in Physiology
- PHY 598 Introduction to Research
- PHY 640 Applied Electrophysiology
- PHY 641 Molecular Mechanisms in Control of Ion Permeability
- PHY 651 Advanced Topics in Muscle Physiology
- PHY 653 Problems in Synaptic Physiology
- PHY 655 Sensory Neurophysiology
- PHY 656 Neural Correlates of Behavior
- PHY 690 Research Topics in Physiology
- PHY 699 Dissertation Research

Academic Policies

(Additional policies are listed in The Graduate College and in the Academic Information sections.)

Qualifying Exam. A candidate will take a qualifying exam no later than 24 months after admission. This combination of a written and oral examination will be designed by the principal advisor, director of the graduate program, and appropriate faculty and will be tailored to the individual student. It is expected that the student will demonstrate a professional level of comprehension of their research area, command of allied fields, and an ability to critically evaluate research. The student will have two opportunities to pass the exam.

Dissertation Proposal. Upon admission to the division, the student and his/her principal advisor shall begin to make preparations for a proposal upon which the student's original research project will be based. Such preparations will include intensive study of the literature in the student's field of interest, instruction in the basic laboratory skills necessary for professional development in the field and any other requirements established by the principal advisor and division director, in addition to the course requirements discussed above.

No later than 36 months after admission, the candidate shall present to his/her dissertation committee an original proposal for contribution to knowledge in his/her specialty. It shall include an extensive review of the relevant scientific literature, a description of the technical aspects of the proposed studies, an outline of the anticipated experimental approach to the major problem of interest and a discussion of possible results and their interpretation. The student will be expected to defend both his/her proposal and general ability to achieve professional competence before the dissertation committee.

The dissertation committee shall have at least four members including the principal advisor, the division director, and, whenever possible, an individual outside the institution with national stature in the candidate's field of interest selected jointly by the candidate, principal advisor, and division director. In addition to evaluating the content of the dissertation proposal, the outside member shall have a responsibility to maintain close and frequent contact with the student and principal advisor and to advise the division director concerning the progress of the academic program. Ordinarily, the dissertation committee shall be constituted

as soon as possible after admission of a student to the division.

The dissertation proposal may be submitted to the faculty prior to completion of course requirements in order to enable research activity to begin, but the student will not be formally admitted to candidacy until this is satisfactorily completed.

Candidacy. Upon completion of the qualifying exam and acceptance of the dissertation proposal, the student shall be admitted to candidacy for the Ph.D. and shall be expected to devote his/her energies fully to the program. A minimum residency requirement of one calendar year following admission to candidacy must be met by all students unless special exceptions are granted by the division director and dean. The principal advisor shall make frequent reports to the division director concerning the student's progress, and, should either faculty member or the candidate feel it appropriate, the dissertation committee can be called into session to judge the student's continued participation in the graduate program or to determine possible alterations in the area of his/her research efforts. In addition, the student and principal advisor will be expected to consult periodically with the other committee members who may also request the division director to call formal meetings of the dissertation committee.

Conflicts between the student and/or any members of the dissertation committee not resolvable by the full committee may be referred to the advisory committee of the division or higher authority as specified in the policies and procedures of The Graduate College.

The degree of doctor of philosophy is given in recognition of high attainment and ability in a particular field of scientific research as evidenced by submission of a dissertation showing power of independent investigation and forming an actual contribution to existing knowledge. Such dissertation will be submitted to the candidate's dissertation committee for review and defended orally at least three months before the degree is granted. The dissertation committee will ordinarily request an evaluation of the candidate's dissertation by a scientist of national stature not affiliated with Rush University.

Acceptance of the dissertation by the dissertation committee will be reviewed by The Graduate College Council and the dean, along with the candidate's entire academic performance in The Graduate College. Determination of completion of all requirements will result in the dean's recommendation that the degree be awarded at the next scheduled commencement exercises of Rush University.

Should the candidate not have submitted a dissertation three years after admission to candidacy, the dissertation committee shall be convened to evaluate the candidate's progress, and, if proper, to suggest alteration in the program.

Research Activities

Membranes. A number of investigators are interested in the properties of solute movement across membranes because solute movement underlies much of the behavior of cells, tissues, organs or, for that matter, animals. The movement of solute is governed, in large measure, by protein molecules embedded in the membrane, molecules which form a protein pipe usually called an ionic channel.

A recent technique, called the "patch clamp", allows the measurement of current flow through the channels embedded in a small patch of membrane, often through just one channel at a time. Dr. James Rae, Dr. Richard Levis, and Dr. Robert Eisenberg are responsible for significant improvements in the technology of patch clamp; they have optimized the construction of the set-up and greatly improved the success of patch clamp experiments. Together with Dr. Alan Finkel of Axon Instruments, they have designed a patch clamp amplifier--the Axopatch--which is quieter and more convenient than its predecessors. The first design is reaching the marketplace this year. Dr. Rae has begun an extensive characterization of the more than 20 channel types found in ocular membranes. Dr. Kim Cooper, and Dr. Eisenberg, working with graduate student Peter Gates, are investigating the theory of ion movement through the pores of channels. They are comparing the theory of diffusive motion over energy barriers (the present day representation of ionic movement in physical chemistry) with more traditional physiological theory adopted from the physical chemistry of gas phase transitions. Use of the theory of mean passage time promises a direct connection between theory and experimental measurements of rate constants.

Dr. Tom DeCoursey, working in collaboration with Dr. Beth Jacobs of the Patch Clamp Center, is investigating the properties of membranes of pulmonary Type II alveolar epithelial cells. These cells play a vital role in producing and secreting pulmonary surfactant, a substance that lines the air spaces in the lungs and keeps the lungs from collapsing during normal exhalation. Abnormalities in the production of surfactant underlie a variety of diseases, including infant respiratory distress syndrome, a major cause of death in newborn infants. Dr.'s DeCoursey and

Jacobs are now characterizing the ion channels present in these cells in primary culture under normal conditions. Once this baseline has been established, they will explore functional roles for ion channels trying to discover the mechanisms by which the production and secretion of surfactant is regulated.

Dr. Fred Cohen is interested in exocytosis, the process by which vesicles inside cells fuse to a plasma membrane and release their contents to the outside world. Exocytosis is a widespread secretory mechanism in animals, accounting for transmitter release at synapses and hormone release from most endo- and exocrine glands. The physical/chemical basis of exocytosis has been studied by Dr. Cohen and colleagues in a model system consisting of artificial phospholipid vesicles fusing to a lipid bilayer membrane. Experiments have shown that divalent cations bring some vesicles very close to the planar membrane. If these vesicles then swell, they fuse with the planar membrane after a critical pressure develops. The experimental results can be quantitatively described by the formalism of irreversible thermodynamics. The steps by which the vesicle, now fused to the planar membrane, releases its contents are currently being investigated. In collaboration with Dr. Walter Niles, Dr. Cohen fills vesicles with a fluorescent dye and observes the release of the dye with a silicon intensified target video camera. With this technique Dr.'s Cohen and Niles can control and thus understand the water flows across the membrane and vesicle involved in release. In particular, direct observation of the fusion, lysis, and release of vesicles is now possible.

In quite separate work, in collaboration with Dr. William Cramer of Purdue University, Dr. Cohen is studying the molecular basis of channel permeatin. The techniques of gene isolation and nucleotide sequencing allow the determination of the amino acid sequence of the colicin channel encoded by an *E. coli* plasmid. The three dimensional structure of this channel is not known, however, and that is the information needed to relate anatomical structure and biological function. Theoretical algorithms are available to predict the three dimensional structure and Dr. Cohen has been checking their predictions.

Dr. Richard Levis is interested in the sodium conductance of the nerve cell membrane. His investigations utilize the axial wire voltage clamp to measure currents from large areas of squid axon membrane (containing several billion sodium channels) and the patch voltage clamp to record the currents from individual sodium

channels. The voltage dependence of the sodium channel arises from the movement of intra-membraneous charges that are associated with the channel macromolecule. The movement of this charge can be measured as electric current and has been called "gating current". Dr. Levis is interested in the properties of gating currents since they are the direct electrical manifestation of voltage dependent conformational changes leading to the opening of the channel. He hopes also to measure the intrinsic current fluctuations ("noise") arising from the stochastic movement of gating charge since such measurements can ultimately provide a test of many crucial assumptions that underlie present molecular models of any channel. To do this, he has had to make significant improvements in the resolution of the voltage clamp technique.

Muscles. A number of workers are interested in muscle fibers, principally the skeletal muscle fibers that perform voluntary movements and the cardiac fibers that make up the tissue of the heart.

Dr. Eduardo Rios is studying the mechanisms which control contraction in skeletal muscle. He has built apparatus to control the voltage across the muscle membrane while measuring the calcium concentration in the sarcoplasm with a multibeam, multiport microspectrophotometer and diffractometer. The different types of charge movement are now ascribed to different states of the same molecule, a protein closely related, if not identical, to the Ca^{++} channel. The flow of Ca^{++} through the Ca^{++} channel is not known to be directly involved in the control of contraction. Dr. Rios proposes that the voltage sensing apparatus of the molecule is so involved.

Dr. Brenda Eisenberg is also working on contractile properties of cardiac muscle. Contractile function in cardiac muscle is determined by isomyosins which differ in their Ca^{2+} -activated ATPase activity. In ventricular muscle, the presence and relative proportions of those isomyosins have been noted to vary with age. In baby rabbits, the V_1 isomyosin, which has lower ATPase activity, slowly increases in the ventricular myocardium, and by three months comprises 50 percent of the total myosin present. These shifts in isomyosin composition in the ventricular myocardium are responsible for the alteration in contractile properties of the cardiac muscle with aging. Although many biochemical studies have been done on the isomyosins, few have been reported on their histological localization. Dr. Eisenberg has developed techniques whereby monoclonal antibodies can be used in immunofluorescence

studies for localization of either the V_1 or V_3 isomyosin in order to follow the conversion of V_1 to a mixture of V_1 and V_3 as it occurs with growth and development. The incorporation of newly synthesized myosin can be observed in the electron microscope at a resolution of some 10 nm. This resolution allows direct observation of the mechanism of incorporation of a newly synthesized iso-protein in a functioning macromolecular structure, the sarcomere.

In a separate project Dr. Eisenberg is exploiting the technology of molecular biology to follow the switching on and off of the myosin genes in cardiac tissue. Specific genetic probes are made, labelled with visible material, and hybridized to fixed tissue section where they can be detected *in situ*.

Lens of the Eye. The lens of the eye is a fascinating tissue, specialized to remain transparent and refract light while carrying on the normal life-sustaining functions of cells. Drs. James Rae and Robert Eisenberg have extensively studied the electrical properties of the lens with a variety of techniques. Significant progress has been made in localizing the conducting channels to specific membranes of the lens. The coupling of epithelial cells to lens fibers has been demonstrated for the first time, and agents which uncouple lens fibers, one from another, have been discovered. The role of the extracellular space in the normal electrical properties of the lens has been described. Dr. Rae has extended his studies to the ionic channels that determine membrane properties in the lens and cornea. He has discovered a K^+ channel that shows substantial rectification, allowing only inward current flow. He has also studied a large conductance K^+ channel that is activated both by voltage and internal Ca^{++} . Dr. Rae has also investigated the channel population in the epithelium and endothelium of the cornea of humans. A nonselective cation channel, a K^+ channel, and a large conductance anion channel have been discovered.

Nervous System. Dr. Gerald Gottlieb, working in collaboration with Dr. Gyan Agarwal, is interested in motor coordination. For example, a human limb resists being moved by generating restoring forces. This active (non)compliant behavior is determined by intrinsic muscle properties, segmental reflex mechanisms, and the laws of physics, all except the last under the influence of supraspinal nervous systems. Dr. Gottlieb is actively involved in studying how such behavior is controlled and the relative contributions of each component. Another area of interest is the control of voluntary movement. Voluntary movement is generated by specifically

patterned activation of various muscles. Mathematical models are being developed to analyze the patterns of activation and the movements they produce. Finally, tendon jerk reflexes are being analyzed in neonates and compared to those of adults.

Dr. Jeffrey Kroin is interested in new approaches to chemotherapy of diseases of the nervous system. One study has shown the efficacy of intrathecal baclofen, a widely used antispasmodic drug, in reducing spinal reflexes in animals. In collaboration with Dr. Richard Penn, this concept has now been used to treat patients with spasticity of spinal cord origin. Clinical studies are being initiated to treat malignant gliomas with intratumoral infusion of cisplatin. Experiments using intrathecal bupivacaine for pain control and local chronic lidocaine to inhibit peripheral nerve have been completed and will now be developed for human application.

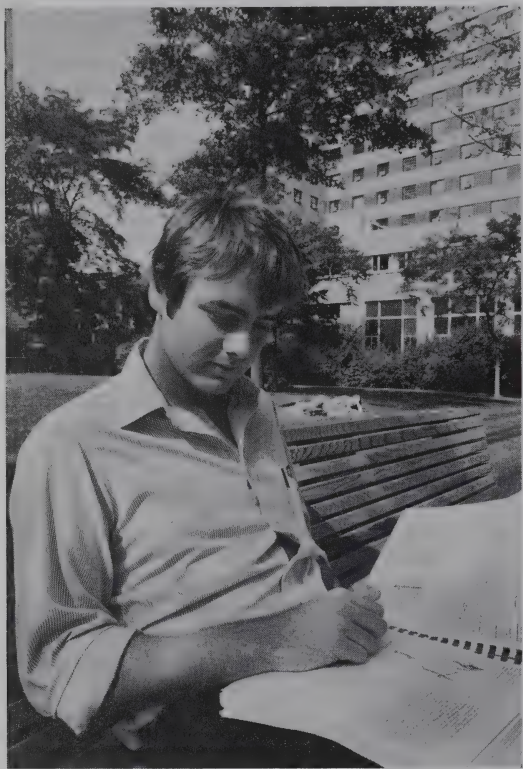
Dr. Roger Zimmerman is interested in the retina. Although the circuitry of the retina has been studied in some detail in the adult, the development of the retinal circuits is poorly understood. Dr. Zimmerman, in collaboration with Dr. Polley of the University of Illinois, has determined the time of final mitosis of a neuron with triated thymidine and studied the morphology with Lucifer yellow staining. In this way the development of the characteristic morphology and synaptic relationships of cells has been defined.

Hypertension. Dr. Margaret Mullins von Dreele is working on the pathogenesis of hypertension in the spontaneously hypertensive rat. She will determine the hemodynamic consequences of extracellular volume expansion and, in collaboration with Dr. Ludwig Kornel, will study Na^+ and Ca^{++} transport properties and steroid receptors of vascular smooth muscle of neonatal and maturing spontaneously hypertensive rats.

Educational Research. Drs. Joel Michael and Allen Rovick are studying the applications of computer based learning to medical education. In collaboration with Dr. Martha Evens, Department of Computer Science, Illinois Institute of Technology, they are developing a "smart tutor" to assist students in developing problem solving skills. A second project, in collaboration with Mr. Frank Naeymi-Rad, Director of the Computer Center of Chicago Medical School, is the development of a relational data base system for the generation, scoring, and record keeping of multiple choice exams. A respiratory patient simulator is being

developed in collaboration with Dr. Robert Rosen, Section of Pulmonary Medicine, Department of Internal Medicine. This simulator will have a wide range of users, from medical

students to clinical fellows and will represent one of the first applications of computer modeling to bedside problems in the Medical Center.



Division of Psychology

Philosophy

The Division of Psychology offers a program of study leading to a doctor of philosophy degree in psychology with specialization in health psychology. The goal of the program is to integrate basic knowledge of human behavior across the life span with specialized understanding of psychological issues in health and illness.

Admission Requirements

In addition to the admission requirements established by The Graduate College, the division requires the results of the Graduate Record Examination (GRE) aptitude test and the advanced test in psychology. A personal interview may be requested. Completed applications should be submitted to The Graduate College by February 15.

Admission to the program is limited and competitive with students admitted only once each year in the fall term. Students from varied backgrounds whose career commitment is to health psychology are encouraged to apply. Although a background in psychology and the biological sciences is desirable, there are no specific requirements for admission regarding undergraduate preparation. Students who have graduate training may apply and, if admitted, their class standing will be determined on an individual basis.

Applicants will be evaluated on the basis of their academic record, letters of recommendation, their personal statements of career goals and aspirations, and their GRE scores. It is the responsibility of the Graduate Committee to review all applications and recommend acceptable candidates. The authority for admission to the program rests with the entire faculty of the graduate Division of Psychology, The Graduate College Council and the dean.

Curriculum

The curriculum is designed to provide a foundation in the science of psychology while permitting students the flexibility to pursue individual interests in health psychology. Completion of a core program in the basic theory

and methods of psychology, with a concentration in biological psychology and normative behavior across the life span, is required. Depending upon their area of interest, students pursue advanced study and research leading to a dissertation in a specialized area in health psychology. Study in the biological sciences and other cognate areas relevant to the student's program is encouraged.

Course requirements for all students include the following:

General Psychology Core

- PSC 501 Psychology of Learning
- PSC 521 Biological Bases of Behavior
- PSC 522 Psychophysiology
- PSC 531 Developmental Psychology I:
Infancy through Adolescence
- PSC 532 Developmental Psychology II:
Adulthood and Aging
- PSC 541 Theories in Social Psychology
- PSC 545 Health and Illness Behavior
- PSC 557 Human Neuropsychology

Statistics

- PSC 505 Biostatistics I
- PSC 506 Biostatistics II
- PSC 507 Biostatistics III

Academic Policies

(Additional policies are listed in The Graduate College and in the Academic Information sections.)

The doctoral degree program in psychology requires a minimum of 144 hours beyond the bachelor's degree, equivalent to four years of academic preparation. Students are expected to maintain full-time enrollment during the academic year.

Comprehensive Examination. A written examination designed to assess the student's knowledge of general theory and methods of psychology will be taken after the first two years of satisfactory work is completed.

Dissertation. Following successful completion of the comprehensive examination, the student will begin work on a dissertation, according to the

following agenda:

- selection of a dissertation committee in consultation with the major advisor
- development of an acceptable research dissertation proposal
- oral preliminary examination in reference to the rationale, methods and goals of the dissertation proposal
- admission to candidacy for the doctoral degree, contingent upon approval of the proposal by the student's dissertation committee
- completion of dissertation research
- oral defense of the dissertation

Research Activities

The Department of Psychology and Social Sciences is involved in a wide variety of both basic and applied research studies. Some of these are independent, and others are interdisciplinary, involving continuing collaboration with other scientists, clinicians, and departments within the Medical Center.

The neuropsychology group is carrying out a large program concerning the effects on behavior of various diseases of the central nervous system. Some of these studies are independent, but many are collaborative and involve members of the Departments of Neurological Sciences, Neurosurgery, Internal Medicine, and Psychiatry. These studies include: memory disorders and psychopathology in Huntington's disease; memory disorders, hallucinatory syndrome, and drug effects in Parkinson's disease; treatment effects in Tourette's syndrome; cognitive and motor function in dialysis encephalopathy, interictal behavior in epileptics; consequences of surgical control of epilepsy; lateralization of function in the cortex; behavioral sequelae of viral encephalitis; behavioral manifestations of myotonic dystrophy and memory disorders in Alzheimer-type dementia.

Research on individuals with cancer has focused on specific cancer populations and how psychological issues interface with medical care. Early detection procedures, such as breast self-examination to detect breast cancer and skin self-examination to detect melanoma in high-risk populations, have also been evaluated to increase compliance. Research is also being conducted in the area of life stress as this pertains to adjustment factors for hospitalized

elderly patients. Another study is concerned with development of a test to measure behavioral regression for hospitalized medical patients. A newly funded study is concerned with helping nurses stop smoking.

Evaluation of low back pain has been facilitated by development of several pain scales that rely on the language of pain for discrimination. It is now possible to identify patients with psychological disturbance among patients with varying degrees of organic involvement using a small number of affective and sensory pain descriptors. These pain descriptors are now being evaluated as they apply to the more complex, industrially injured patients to determine their usefulness in accurately categorizing subgroups.

Studies of sleep disorders and the relation of these to psychological, physiological and social functioning are another departmental focus. Behavioral treatments, both alone and in combination with surgical and/or pharmacological approaches, are being tested for control of sleep apnea in the Sleep Disorder Service. Sleep apnea--a potentially life-threatening disorder--is most commonly treated surgically. One study has been testing a mechanical device for keeping the upper airway open during sleep in comparison with the efficacy of other treatments. Another approach developed and being tested in the laboratory is use of a sleep postural alarm to prevent sleeping in the supine position during which sleep apnea is more severe. The effects of this disorder, which involves nocturnal hypoxemia, on cognitive functioning and also on marital relationships are under study. Of continuing interest in this laboratory is study of cardiac arrhythmias occurring in sleep. New studies are testing home recording equipment for circadian rhythms and for dream reporting. The prevalence of chronic care nurses to identify sleep apnea in elderly inpatients, and a study using chronobiological principles to adjust nurses' shift schedules are also underway. A new study that compares the biological sleep markers and dream characteristics of males and females who are depressed to those of nondepressed controls will attempt to understand why women are more subject to depression than are men.

Social networks have emerged as a research focus on two projects. One is a study of reactions of families and social networks of patients to the situation of being a care giver to patients having neurological diseases (e.g., Alzheimer's disease, dystonia, Tourette's and Huntington's disease). Social networks are also the central concern in a study of adaptation to medical school by medical students. This is the

first major attempt to quantify the changes that occur in the social networks of medical students throughout their four-year medical school experience.

New work has been undertaken in identifying dimensions of patient satisfaction with hospitalization. New strategies for data gathering have been devised which will permit researchers to isolate those particular areas of patient experiences that contribute most to satisfaction and dissatisfaction with inpatient care. Through a sophisticated data gathering system providing rapid feedback to the Medical Center, assessment of alterations of patient care protocols on satisfaction can be made.

In addition, two new research efforts have been developed in the area of health and social policy in collaboration with other departments in the Medical Center. The first is a study of the reduction of risk of cancer through dietary modification. This project has been developed in conjunction with the Department of Preventive Medicine. A second project links psychology and social sciences with health systems management in an effort to determine the impact of attitudinal variables on utilization of HMO services and ultimately on the costs of care attributable to excessive use of services.

Pediatric psychologists are conducting a number of research projects within the Department of Pediatrics. The neurodevelopmental sequelae of prematurity are being assessed in a number of ways. The study of high-risk infants includes measurements of spectral coherence (i.e., shared variability) of cardiac and respiratory rhythms in conjunction with motor and radiological assessments. Measurement of autonomic patterns in relation to site, size, and recovery from intracranial hemorrhage should permit predictions regarding long-term outcome. Similar measurements of asphyxiated infants have permitted accurate prediction of cerebral palsy before infants are discharged from the hospital. Follow-up assessments of autonomic function, auditory sensitivity, neuromotor, cognitive, language, and behavioral development are carried out through four years of age and repeatedly related to functional clusters of perinatal variables. Imbedded within this project are additional studies of autonomic correlates of apnea of prematurity, alternative measures of motor performance, early neuropsychological sequelae of neonatal brain hemorrhage or asphyxia and family stress factors related to quality of developmental outcome. Synthesis of the results should produce effective means of redefining risk status during infancy to reflect individual

differences in extent of recovery from perinatal trauma and/or dysfunction.

Studies of attitudes toward weight and the stigma of obesity continue. Refinement and standardization of the "Weight Attitude Questionnaire" is continuing through the collaborative work of investigators at this institution and Weber State College. The second of two studies is underway demonstrating that health care professionals (i.e., staff nurses) believe that obesity is caused by factors under the individual's self-control and that overweight people are less "likeable" than individuals with physical conditions thought to be caused by external factors.

Another area of investigation involves the development of measures that assess parent/child interaction to help predict probability of reabuse by parents. These potential interactional variables may have utility in making post-hospitalization placement decisions, especially for families with no history of prior abuse.

Patients admitted to the Pediatric Intensive Care Unit with a diagnosis of closed head injury are being evaluated in a battery of neuropsychological, intellectual, and academic measures. These are retested at 3, 6, 12, and 24 months post-trauma. Results of this ongoing evaluation will be employed to address two important questions: What is the natural recovery process of cognitive functions in children who have sustained a closed head injury? Can treatment administered shortly after the trauma predict the ultimate level of recovery of functions?

Patients admitted to the Adolescent/Young Adult Unit with a diagnosis of conversion disorder are being evaluated using a battery of psychosocial and medical measures. This sample will be compared to a matched group of patients with physiologically based symptoms. Findings will be used to construct a clinical scale for the diagnosis of conversion disorder.

The decision to breast or bottle feed their infants will be investigated in a racially mixed sample of new mothers. Expectant mothers will be interviewed during the ninth month of pregnancy and attitudes, socioeconomic factors, and demographic variables will be assessed. These mothers will then be contacted at one and six months postpartum to determine success in fulfilling their intention to breast or bottle feed.

Physical fitness in high school students before and after physical education and semesters without physical education is being assessed. Four standard measures of health-related physical fitness were administered to 150 male and female high school students before and after

education, and a semester without physical education.

Two members of the department are based also in the Section of Psychiatry and the Law. A two-year study of the psychological functioning of individuals found not guilty by reason of insanity has recently been completed. Further, an empirically based protocol for examination of legal insanity, Rogers Criminal Responsibility Assessment Scales (RCRAS), has been examined through a series of validity studies. Additional research is being initiated with respect to the detection of malingering and the identification of Minnesota Multiphasic Personality Inventory (MMPI) profiles of mentally disordered offenders.

Research at the therapeutic day hospital and school focuses on children and their families. One project compares children of divorced parents with those from intact families. Television viewing by emotionally disturbed children and family treatment are also subjects of ongoing studies as well as a comparison of assessment instruments used commonly to measure achievement of children.

The Multiple Sclerosis Center is involved with consideration of the child in the MS family as well as with the rehabilitation perspective for this disease.

At the Johnston R. Bowman Health Center for the Elderly, research has been ongoing in the area of geriatric health psychology. Of continuing interest is the study of the efficacy of various brief psychological interventions with hospitalized elderly. Another study identifies and alters psychosocial and behavioral factors that contribute to the maintenance of physical illness and the defeat of medical management. A new project started this year focuses on influencing and predicting treatment outcome of chronic illness and disability in elderly patients on the physical rehabilitation unit. Part of this project involves the development and psychometric refinement of measures of psychological functioning geared specifically for hospitalized elderly. Another aspect of this research explores the relation among stress, coping, social support, psychological symptomatology and chronic illness.



COURSE DESCRIPTIONS

Explanation of Course Descriptions

Discipline Abbreviations. Courses listed and described in this section are expected to be offered by the faculty of Rush University for the 1987-88 academic year. The courses are listed alphabetically according to the discipline to which the course content is most closely related. These disciplines do not necessarily reflect a department in the University or in the Medical Center. A three-character abbreviation for the discipline precedes the course number for each course listed.

Course Numbers. A three-digit course number follows the course abbreviation. It indicates the level of offering for that course as shown below:

Course Numbers Level of Offering

300-399	Undergraduate Third Level
400-449	Undergraduate Fourth Level
450-499	Dual Level--may be taken for undergraduate or graduate credit
500-599	Graduate Level
600	Post-Master's Level Residency or Thesis Supervision
601-699	Doctoral Level

Course Content. A course title is followed by a brief description of course content and information pertaining to the course:

Course Prerequisites. Specific prerequisites are noted for some courses. Where no prerequisite is listed, it is assumed that students enrolling will have an adequate background on which to build. Students who have any questions

about preparation should consult with the instructor of the course. If corequisite is listed, both courses must be taken during the same term.

Quarter in Which Course is Given. FA(II), W(Inter), SP(Spring), or SU(ummer) designates the quarter in which the course is offered each year.

Course Credit. The number of quarter hours of credit for a course appears between parentheses. In many cases a series of three numbers is shown, e.g. (2-3-3). The first number refers to the hours per week of lecture or seminar; the second, to number of hours in laboratory or clinical setting; the third, to quarter hours of credit. If any of these is variable, it is replaced with "v".

Clock Hours (Rush Medical College). Clock hours appear between brackets. Since students in other colleges may cross-register for courses offered by Rush Medical College, the credit hour value of the course may also appear.

Clinical Weeks (Rush Medical College). The number of weeks that students normally take each clinical course is indicated. These weeks also appear on the academic record.

Instructor. When known, the instructor's name is provided.

Independent Study Courses. Students may enroll in an independent study course in any discipline of the University under the direction of the appropriate faculty member, with his/her written permission, and with the approval of the program director.

The course number 449 will be used for academic independent study for undergraduates and 599 for independent study for graduate students, with the appropriate discipline prefix.

ALTERNATIVE MEDICAL CURRICULUM

All alternative curriculum courses reflect the content of the regular medical curriculum for the first and second years. The format involves student-directed learning and group discussions. Only alternative curriculum students may take these courses.

ALT 451 Cellular/Molecular Biology. An integrated course with emphasis on the basic concepts and principles of biochemistry, immunology and microbiology interwoven with a study of their clinical applications. FA (v) Kaplan, Morley, Siegel.

ALT 452 Anatomical Sciences. The structure and function of the human body are examined from the perspective of the anatomical sciences, interwoven with a study of the clinical applications of gross anatomy, microscopic anatomy and embryology. WI (v) Dinsmore.

ALT 453 Physiology and an Introduction to Pharmacology. An integrated course that emphasizes the processes and phenomena of organ systems, and an introduction to the principles of pharmacology with a special emphasis on the autonomic nervous system, interwoven with a study of their clinical applications. SP (v) Michael, Nora, Prancan.

ALT 464, 465, 466 Behavioral Science I, II, III. An overview of the biological, psychological and sociocultural explanations of human behavior as they relate to health care. FA WI SP (v) Zitter.

ALT 471 Epidemiology. A general survey of biostatistics and epidemiology. FA (v) Olesky.

ALT 472, 473 Preventive Medicine I, II. Preventive medicine dealing with socioeconomic factors in health care, preventive practices and environmental and occupational health. WI SP (v) Eckenfels, Hall.

ALT 511, 512, 513, 514 Introduction to Patient I, II, III, IV. Clinical concepts and skills. Students learn to elicit a medical history and do a general screening examination. Techniques are practiced on other students, simulated patients and patients. FA WI SP FA (v) Rothschild, Lofgren, Schwer, Hedberg, Noureldin, Kroger, Brown, Staff.

ALT 515, 516 Introduction to Patient V, VI. Continuation of ALT 514. WI SP (v) LaPalio, Staff.

ALT 531 Neurosciences. The neurosciences, including neuroanatomy, neurophysiology, neuropathology, psychopathology and neuropharmacology. FA (v) Bleck, Busch, Carvey.

ALT 540 General Pathology. The general concepts of pathology are studied, with an introduction to degeneration, inflammation, immune response, neoplasia and metabolic and toxic pathological processes. Seminars are accompanied by laboratory work in the

microscopic anatomy of pathological changes. FA Weinstein, Loew.

ALT 541 Pathology, Pathophysiology, Pharmacology Block I. An integrated organ systems course with an emphasis on the concepts and principles of pathology, pathophysiology and pharmacology. Studies will include cardiovascular, locomotor, pulmonary and renal systems, immunology, infectious diseases and oncology. WI (v) Hedberg, Nora, Rosen, Weinstein.

ALT 542 Pathology, Pathophysiology, Pharmacology Block II. A continuation of ALT 541. Studies will include: hematology, endocrinology, reproductive system, genetics, gastrointestinal system and hepatology. In addition, there will be clinical trials and integration across all organ systems. SP (v) Staff.

ANATOMY

ANA 451 Histology. The microscopic anatomy of cells, tissues and organ systems of the human body is studied through laboratories, lectures and self-instructional material. Fine structural specializations relating to tissue function are emphasized along with the histological architecture that characterizes each. FA (3-4-5) [82 hours] Dinsmore.

ANA 455 Neuroanatomy. The morphological organization of the central nervous system is explored through lectures, preceptorials, laboratory dissection and microscopic examination of the human brain and spinal cord. Functional and clinical correlations are emphasized. (5-4-6) Kerns.

ANA 462 Introduction to Neurobiology. The development, morphology and functional significance of the human nervous system are presented in lecture and by demonstrations. Fixed human brain preparations and series of neurological slides are used as visual aid materials. Prerequisite: courses in human biology or anatomy and physiology or comparative anatomy. Permission of instructor. FA (2-2-3)

ANA 465 Gross Anatomy. The structure and function of the human body are examined topographically through laboratory dissection, lectures and preceptorials. Laboratory examination is conducted regionally and clinical correlations are emphasized. SU (v-v-5)

ANA 471 Human Anatomy I. The structure and function of the human body are examined topographically through laboratory dissection, lectures and preceptorials. Laboratory dissection is conducted regionally, encompassing the thorax, abdomen, pelvis, perineum, head and neck, back and extremities. Radiological anatomy, living anatomy, and clinical correlations are emphasized.

Embryology. The fundamentals of human development are examined from gametogenesis and fertilization through the formation and differentiation of the germ layers, organogenesis and morphogenesis of the fetus. Congenital malformations and experimental

embryology are introduced where feasible. FA (5-6-7) [100 hours] Schmidt.

ANA 472 Human Anatomy II. Continuation of ANA 471. Embryology is introduced where pertinent. WI (5-6-7) [90 hours] Schmidt.

ANA 501 Supplement to Histology. Discussion groups for graduate students based on ANA 451. FA (v-v-v)

ANA 502 Supplement to Neuroanatomy. Discussion groups for graduate students based on ANA 455. (v-v-v)

ANA 503 Supplement to Human Anatomy I. Discussion groups for graduate students based on ANA 471. FA (v-v-v)

ANA 504 Supplement to Human Anatomy II. Discussion groups for graduate students based on ANA 472. WI (v-v-v)

ANA 505 Supplement to Embryology. This supplemental course for graduate students focuses on, but is not limited to, human embryonic and fetal development. Selected readings will be assigned in coordination with student interests and the embryology sections of ANA 471, 472. FA WI (v-v-2)

ANA 511 Comparative Cytology of Tissues. Cellular structure will be studied in relation to the organization of selected tissues. Emphasis includes application of special techniques, and the evolution of contemporary views on structure and function. Prerequisite: ANA 451. SP (3-0-3) Hughes.

ANA 513 Anatomy of the Eye. The histology and embryology of the eye will be reviewed in detail as the basis for discussion of selected topics. These will include congenital malformations, physiology and pharmacology of selected ocular systems; vessels and nerves of the orbit and regional structure and function. SP SU (3-0-3) Hughes.

ANA 521 Experimental Morphogenesis. Classical and contemporary studies of embryonic development and regeneration will be analyzed for common themes. With this foundation, students will be challenged to design experiments by which insight into differences and similarities between the paradigms may be further elucidated. Where feasible, the student may be invited to elaborate on the experiment as an independent laboratory research project. Prerequisite: ANA 451. (3-v-4) Dinsmore, Schmidt.

ANA 522 Tissue Repair Mechanisms. The ability of the several tissues of the vertebrate body to repair themselves is quite variable. The repair potential and mechanisms of each tissue will be considered separately, and in detail, through discussion of current journal articles. Prerequisite: ANA 451. (3-0-3) Dinsmore, Schmidt.

ANA 531 Anatomy of the Synovial Joint. The gross and microscopic anatomy of the synovial joint will

be examined in detail as a basis for discussion of selected topics. Topics will be arranged to meet individual student needs and may include physiology and biochemistry of articular cartilage, subchondral bone, synovial membrane and other associated structures. Permission of instructor. (v-v-v) Williams.

ANA 541 Topics in Muscle Biology. A seminar format will be employed for critical examination of papers relating to the biology of muscle in one of the following areas: current topics in excitation-contraction coupling, contractility and energetics; or review of the neuromuscular junction followed by examination of experimental systems dealing with the trophic maintenance and the development of muscle fiber types. Contributions of nerve injury to the pathogenesis of muscle disease will be considered. Permission of instructor. FA (3-0-3) Hughes, Kerns.

ANA 560 Topics in Neurobiology. A seminar format will be utilized to review selected topics and original papers within one of the following units of study: neurogenesis, plasticity, synaptic organization of neural systems or current methods in neuroanatomy research. SP (3-0-3) Durica, Hughes, Jacob, Kerns.

ANA 581 Approaches and Methods in Morphologic Research. Study of how sources of information, methods of investigation and technical procedures are applied to anatomic research. Demonstrations of techniques and student laboratory participation are included. SU (2-4-4) Staff.

ANA 591 Preceptorials in Anatomy. Laboratory experience is provided in conjunction with related preceptorials on selected topics in the anatomical sciences. Prerequisites: ANA 451, 472. SU (2-v-v) Staff.

ANA 592 Concepts in Morphology. Seminars and tutorials offered by faculty and guests on topics of special interest in the morphological sciences. FA WI SP SU (v-v-v)

ANA 595 Journal Club. (v-v-v)

ANA 599 Independent Study. Selected topics in anatomical science. (v)

ANA 600 Thesis Supervision. Supervision while student is writing the master's thesis following all required course work. Repeated until thesis is accepted for publishing. Student pays enrollment fee. No credit.

ANA 601 Surgical Anatomy. A laboratory program of regional dissections and demonstrations. The applied, clinical and surgical aspects of anatomical regions are emphasized. Prerequisites: ANA 471-2 or equivalent. FA WI SP SU (v-v-v) Doolas, Schmidt.

ANA 602 Advanced Anatomy. A laboratory program of special dissections and demonstrations on

selected regions of the body: thorax, abdomen, pelvis and perineum, upper and lower extremities and the CNS (spinal cord and brain). Prerequisites: ANA 451, 472 or equivalent. FA WI SP SU (v-v-v) Schmidt.

ANA 699 Research. Research devoted to the preparation of a dissertation in partial fulfillment of the requirements of the degree program. FA WI SP SU (v-v-v) Staff.

BEHAVIORAL SCIENCE

BHV 351 Rape Victim Advocacy. Identification of the theoretical framework for rape intervention and discussion of various issues faced by an individual experiencing rape trauma syndrome. Graduate students enroll in BHV 551. (2-0-2)

BHV 402 Advanced Behavioral Science I. Behavioral perspectives are used to analyze selected concepts. The impact of sociocultural, interpersonal, physiologic and intrapsychic influences are explored. Prerequisite: BIO 302. (4-0-4)

BHV 403 Advanced Behavioral Science II. Continuation of BHV 402. Prerequisite: BHV 402. (4-0-4)

BHV 425 Critical Concepts in Growth and Development of Children and Adolescents. In-depth exploration of theories of growth and development and the application to working with children from birth to 16 years of age. Graduate students enroll in BHV 525. (3-0-3)

BHV 451 Fundamentals of Behavior. During the first five weeks, a series of lectures provide the basic conceptual framework and terminology used to describe and explain human behavior in three areas: biological, psychological and sociocultural. Primary emphasis throughout is on the ways such types of influences affect the lives of patients. A matrix of special topic seminars (BHV 473) is presented during the second five weeks from which students select two. WI [21 hours] de Toledo-Morrell.

BHV 453 Behavior in the Life Cycle. Introduction to a clinically based study of the individual life cycle. Emphasis is on a normative account of development from physical, psychosocial and sociological perspectives. During the second five weeks of the quarter students choose one special topic seminar (BHV 473). SP [26 hours] Lopez.

BHV 465 Assertiveness Training. Comparison of nonassertive and aggressive behaviors and their consequences. Includes intensive practice in both assertive and active listening skills. FA WI (2-0-2)

BHV 473 Behavioral Science Minicourses. A matrix of special topic seminars which allows a concentrated introduction to a significant area of behavioral study. The following descriptions, presented in recent years, are typical of those presented each year. (1 or 2) [10 or 20 hours] de Toledo-Morrell.

Alternative Modes of Healing. Approaches to the facilitation of healing as practiced by such treatment modalities as osteopathy, chiropractic, spiritual healing, naprapathy and reflexology, as well as traditional branches of medicine. Presentations will be made by representatives of alternative modes of treatment.

Behavioral Change Strategies of Medical Practice. The application of the behavioral model of assessment and intervention to medical problems, including multiple strategies to increase compliance with medical regimes; techniques such as relaxation therapy, systematic desensitization, biofeedback, cognitive-behavior modification and stress management in a medical setting.

Death and Dying. Same as REL 464.

Family Assessment. The family systems approach is used to acquaint the student with the family as an object of study, assessment and treatment, including the assessment and treatment of mental and psychosomatic disorders.

Human Sexuality and Health Care. The sexual response in men and women, gender role development, taking a sex history in clinical practice, sex and medical illness and basic aspects of sex therapy in general practice are studied in an attempt to help the prospective physician provide better care to those patients who present themselves with sexual problems or in whom sexual difficulties are uncovered.

Neural Basis of Learning and Memory. Examination of experimental approaches used to study the neural basis of learning and memory. Included will be neurophysiological, biochemical, pharmacological and behavioral studies which will range from detailed analyses of simple behaviors in simple systems to complex learned behaviors in man.

Obesity. The epidemiology, genetics and social psychology of obesity, including the metabolic effects; factors influencing appetite regulation and behavioral, dietary and other approaches to treatment.

Pain. The symptoms of pain and its alleviation as a goal of treatment are studied along with the less obvious relationships to physical disease processes including pain as a complication of treatment.

Parenthood and Child Abuse. The basic emotional and practical issues of parenting and the circumstances under which parents come to abuse their children, with special attention given to why some parents abuse and how professionals can work with them.

Physician on Stage. Same as HUM 462.

Psychology and Psychopathology of Aging. The normal and psychopathological processes of aging and the physician's role in the total health care of the elderly patient. Topics include normal psychology; interviewing techniques; depression, paranoia and organic brain syndromes; psychological and pharmacological treatments and family issues regarding the elderly patient.

Psychology of Young and Middle Adulthood. A theoretical and empirical inquiry into the nature of adult development including psychodynamics of vocational choice, stability and change in personality, sex differences in adult development and criteria of maturity. Theorists to be studied include Kenniston, Erikson, Vaillant, Levinson and Gilligan.

Psychology, Psychiatry and the Law. An examination of some of the complex and controversial issues in the application of psychology and psychiatry to the law as well as the impact of mental health on the legal system, including treatment and evaluative issues; the role of attorneys in the mental health system; patients' rights and professional issues such as court testimony and malpractice.

Psychophysiology of Normal and Abnormal Infants. The close relationship between processes of biological and behavioral development during the first two years is explored in depth. Included are the study of behavioral milestones of normal infants; premature birth and perinatal anoxia and hypoxia; and the special problems of parenting sick or behaviorally abnormal infants. The range of deficiencies of high-risk or abnormal infants is contrasted with the behavioral patterns of mentally retarded and learning disabled children.

Sleep: Normal and Abnormal. A general introduction to the physiology and psychology of sleep, including both normal sleep and dream patterns and the deviations that occur with various medical and psychiatric problems. Also covered are the diagnosis and treatment of the insomnias, hypersomnias and abnormal behaviors associated with sleep.

Sociology of Substance Abuse. A definition of concepts that are necessary to an understanding of drug-related problems in American society and strategies for intervention and prevention programs. Emphasis will be placed on the sociological perspective vs. others that are used (i.e., pharmacological, psychological, medical, and legal).

Sociology of the Hospital. Topics include the organizational variables that influence the quality of patient care; the dilemma of providing clinical services in a bureaucratic system; how external groups exert social control over hospitals; the role of the patient and his/her family in the social structure of the hospital; recent developments and how social and organizational factors that relate to illness and patient care can be modified to increase the quality of care provided.

Stress and Illness. The history of research on stress in relation to health and illness is reviewed, and the evolution of the concept of stress to present day theories is traced. Hormonal parameters of stress, physiological indications of and responses to stress, cognitive responses to stress, coping mechanisms and life event relationships to illness are covered. In addition, the research linking stress to specific diseases and illnesses is discussed.

Work and Health. An examination of the epidemiologic distribution of work-related health problems, the organizational factors and their relation to occupational differences, and the current attempts at organizational changes that are aimed at lowering the level of such pressures.

BHV 501 Behavioral Dynamics. Symbolic interaction is used to develop an understanding of individual behavioral dynamics as well as the social worlds of illness, health and health care delivery. FA (4-0-4)

BHV 503 Theories of Deviance. Exploration of contemporary sociological theories of deviance with emphasis on interactional and labeling processes. Prerequisite: introductory sociology course. (2-0-2)

BHV 523 Crisis Theory/Intervention and Management. Designed to expand the students' knowledge of crisis theory and to provide them with crisis intervention models applicable for clients in various settings. FA SP SU (2-0-2)

BHV 525 Critical Concepts in Growth and Development of Children and Adolescents. An in-depth exploration of theories of growth and development and the application of this information to working with children from birth to 16 years of age. (3-0-3)

BHV 532 Stress Management for Health Professionals. An exploration of the concept of stress and stress management techniques with particular emphasis on their relevance for health professionals. SP (2-0-2)

BHV 533 Coping with Illness and Disability. An introduction to the major theories and concepts that identify and explain how people learn to live with an illness or physical disability. Factors that mediate this process will be highlighted. Design, methodology and the clinical and theoretical significance of findings will be emphasized. SU (3-0-3)

BHV 535 Introduction to Sociometry and Psychodrama. An introduction to techniques that enhance psychosocial assessment and promote empathy, social interaction and group building. Students participate in two clinical psychodrama sessions conducted by psychodramatists. Offered pass/no pass only. (3-0-3)

BHV 541 Self-Destructive Behavior. An examination of a variety of self-destructive behaviors within society with special attention given to the needs of different agegroups. (2-0-2)

BHV 543 Observation and Communication. Introduction to the interview technique and process--the interview as a tool that facilitates the doctor-patient relationship and produces reliable and valid medical information. Interview theory, determinants of

patient behavior and practice of interview skills are included. Seminars use videotapes. Prerequisite: BHV 451. WI [20 hours] Leavitt.

BHV 551 Rape Victim Advocacy. The student will identify the theoretical framework for rape intervention and design treatments for an individual experiencing rape trauma syndrome. (3-0-3)

BHV 561 Small Group Dynamics. This course focuses on theoretical perspectives of small groups, assessment of group characteristics and consideration of selected problems in their use. FA SP (2-v-3)

BHV 565 Family Dynamics. The ability to assess functional/dysfunctional families will be provided through understanding developmental tasks of families and the political and socioeconomic issues they confront. (2-0-2)

BHV 571 Living as Sexual Beings: Human Sexuality Across the Life Span. An exploration of the development of human sexuality and how it is expressed throughout the life span. Emphasis will be placed on developing comfort and competence in the practitioner with assessment and problem-solving skills in working with clients in various settings. Students will be expected to do a sexual health care plan and a paper/presentation on an issue related to sexuality. (2-0-2)

BIOCHEMISTRY

BCH 411, 412 Clinical Biochemistry I, II. Courses on the analytical and biochemical basis of methods used for chemical analysis of body fluids as related to diagnosis and treatment of disease. Topics discussed include blood sugar, carbohydrate tolerance tests, renal function tests, plasma electrolytes, blood gases, proteins, enzymes, liver function tests, cholesterol and lipids. Critical evaluation of methods is emphasized. (4-0-4) (4-0-4)

BCH 413 Clinical Chemistry III. These tests and topics are covered: chemical hematology, special proteins, vitamins, biogenic amines, elementary toxicology, thyroid function tests and steroid methods. Principles underlying automated and computer application methods will be discussed. Prerequisites: BCH 411, 412. (3-0-3)

BCH 471 Medical Biochemistry I. The chemistry and metabolism of biologically important compounds, amino acids, and proteins; nucleic acid and protein synthesis; bioenergetics; biochemical function of enzymes; common pathways of metabolism; and carbohydrate, lipid amino acid metabolism. Additional topics include integration of cellular metabolism; regulation of pH and electrolyte balance; regulation of whole body metabolism; muscle biochemistry; biochemical nutrition and connective tissue biochemistry. FA (6) Bezkorovainy.

BCH 472 Medical Biochemistry II. Continuation of BCH 471. WI (6) Bezkorovainy.

BCH 501, 502, 503 Fundamental Biochemistry for Graduate Students I, II, III. Involves BCH 471, 472, plus two additional, weekly, seminar-type sessions to discuss additional reading assignments. FA WI SP (7) (7) (4)

BCH 511, 512 Fundamental Biochemistry I, II. Graduate level fundamental biochemistry seminar taken as a supplement to BCH 471 and 472. (1) (1)

BCH 581 Biochemical Research Techniques for Graduate Students. (4) Staff.

BCH 585. Research in Industry. An 8-10 week (usually spring quarter) experience at an industrial research laboratory in Europe or the U.S. The student will focus on major and minor research areas. Assigned reading, a final examination and a written report are required. SP (5)

BCH 590 Special Topics. One topic to be given each quarter, including summers. Cycle repeats every two years. Anticipated topics and instructors include the following: intermediary metabolism (lipids and carbohydrates), Hayashi, Lange; nitrogen metabolism (proteins and nucleic acids), Bezkorovainy, Morley, Sky Peck; biochemistry of connective tissue, Kuettner, Kimura, Thonar, Schwartz; biochemistry of macromolecules (acids and bases, enzymology, physical biochemistry of macromolecules), Sky Peck, Thonar, Bezkorovainy, Kimura; and nutritional biochemistry, including vitamins and metalloelements, Gotterer, Sky Peck, Bezkorovainy. Topics may be deleted, combined or other topics added at the discretion of the Graduate Program Committee. (3)

BCH 595 Seminar and Journal Club. Attendance at all seminars and completion of all journal article assignments are required of biochemistry students. (1)

BCH 602 Biochemistry of Disease. The alterations of metabolic pathways in various organs and tissue compartments are studied in relation to organ, metabolic and genetic pathology. The biochemical derangements are illustrated with case demonstrations. Topics are selected and discussed with emphasis on current research work. The facilities of the clinical chemistry laboratory are available to illustrate biochemical changes and their significance. Prerequisite: BCH 471. (2-0-2) Morley.

BCH 611, 612, 613 Clinical Biochemistry Lecture I, II, III. The sequence will include concepts of clinical biochemistry practice, concepts and principles of toxicological analysis, statistics, laboratory management, budgeting and personnel matters. (3) (3) (3) Mattenheimer, Dubin.

BCH 614, 615 Clinical Biochemistry Laboratory I, II. Six contact hours per week will provide the student with knowledge of methodology in toxicology and drug analysis, automation, instrumentation, quality control, interpretation of test results and use of data processing equipment. (3) (3) Mattenheimer, Dubin.

Note: BCH 611-15 are designed to meet the clinical biochemistry accreditation requirements.

BCH 621, 622, 623 Lectures in Cell Biology and Supramolecular Biochemistry I, II, III. (3) (3) (3) Aydelotte, Pauli.

BCH 624, 625 Tissue Culture and Electron Microscopy Laboratory I, II. There will be six contact hours per week. (3) (3) Aydelotte, Pauli.

BCH 651 History of Science. Elective. (2) Staff.

BCH 652 Science, Law, and Ethics. Elective. (2) Staff.

BCH 699 Research in Biochemistry. (v)

BIOLOGICAL SCIENCES

BIO 301 Advanced Biological Sciences I. Content areas cover body defense mechanisms and reproduction. Lectures emphasize human physiology and pathophysiology. Prerequisite: NSG 301. (4-0-4)

BIO 302 Advanced Biological Sciences II. Content covers maintenance of cellular environment. Lectures emphasize human physiology and pathophysiology. Prerequisite: NSG 301. (4-0-4)

BIO 310 Selected Topics in Human Physiology. Topics focus on the anatomy and physiology of the cardiovascular, respiratory, endocrine and neurological systems. Each unit represents content that is fundamental to an understanding of human function which is the foundation of the practice of nursing. (2-0-2)

BIO 520 Pathophysiology. In-depth analysis of pathologic physiology using actual case histories; focus on etiology of symptoms and rationale of therapeutic regimens. Corequisite: BIO 555 (2-0-2)

BIO 521 Biological Basis of Clinical Therapeutics. Emphasis is on understanding of the physiological and biological basis and meaning of assessments and therapies related to body regulation of certain aspects of internal cellular environment. Prerequisite: PHY 555. WI (5-0-5)

BIO 523 The Biological Basis of Nervous System Function and Dysfunction. Lectures emphasize an understanding of the physiological basis of nervous system function and dysfunction. (3-0-3)

BIO 530 Introduction to Reproductive Endocrinology. This introductory course will describe the basic, integrative principles of the endocrine system while dealing with the embryological, morphological and reproductive functional aspects of the male and female genital tracts up to the time of implantation. Male and female clinical disorders will be discussed as well as the interpretation and clinical application of hormonal assays. FA (2-0-2)

BIO 531 Biological Aspects of Perinatology I. The major focus of this course is exploration of basic

reproductive physiologic concepts as they pertain to the maternal-fetal unit. WI (4-0-4)

BIO 532 Biological Aspects of Perinatology II. The major focus of this course is the study of basic biological concepts which apply to aberrant maternal-fetal interactions in the intrapartal and postpartal periods. Prerequisite: BIO 531 and/or permission of instructor. SP (4-0-4)

BIO 541 Pediatric and Adolescent Physiology, Pathology and Pharmacology I. This course reviews developmental physiology and pathology and discusses the use and effects of classifications of pharmaceuticals. (3-0-3)

BIO 542 Pediatric and Adolescent Physiology, Pathology and Pharmacology II. Continuation of BIO 541. (3-0-3)

CELL BIOLOGY

CEL 501 Cell Biology. Study of ultrastructure and function of the cell organelles. Structures covered include the nucleus, the plasma membrane organization and cell-to-cell communication. Also covered are the mitochondria, the endoplasmic reticulum, golgi apparatus and cell secretion and the cytoskeleton and molecular basis of motility. Alt. SP (2-0-2) B. Eisenberg.

CEL 522 Electron Microscopy Laboratory. Practical techniques of electron microscopy are addressed. Students dissect, fix and imbed tissue and learn the use of the electron microscope. The goal of the course is the preparation of electron micrographs of research quality. Extensive time for practical use of the equipment will be available. (0-8-4) B. Eisenberg.

CEL 531 Stereology. This course will present practical and theoretical approaches to measurement of anatomical structures. General principles of estimation of volume surface area and number will be covered by stereology and other techniques. Permission of instructor. (2-0-2) B. Eisenberg.

CEL 533 General Pathology. The general concepts of pathology are studied with an introduction of cell injury, inflammation, immune response, metabolic and toxic pathological processes and neoplasia. The lectures and seminar groups are accompanied by laboratory work in the microscopic anatomy of pathological changes. Prerequisite: ANA 451 or permission of instructor. FA (3-4-5) Pauli.

CEL 571 Cell and Molecular Biology Techniques. This multidisciplinary course is open to students from all divisions. Practical methods used in modern research laboratories are demonstrated. Instructors active in these techniques use their own research facilities. Topics include tissue culture, light and electron microscopy, immunofluorescence, monoclonal antibody production, gel electrophoresis, cell fractionation, recombinant DNA technology, etc.

Laboratories for inclusion depend on student interest and availability of faculty. Prerequisite: CEL 501 or permission of instructor. Alt. SP (1-3-2)
B. Eisenberg and Staff.

CEL 599 Independent Study. (v-v-v)

CEL 612 Electron Microscopy. Practical techniques of electron microscopy are addressed. Students dissect, fix and imbed tissue and learn the use of the electron microscope. The goal of the course is the preparation of electron micrographs of research quality. Extensive time for practical use of the equipment will be available. [2 weeks] B. Eisenberg.

CLINICAL CONCEPTS AND SKILLS

CCS 501, 502 Clinical Concepts and Skills I, II. A comprehensive introduction to clinical medicine utilizing the resources of the Medical Center and the Rush network hospitals. Studies are primarily tutorial, but texts, audiovisual and mechanical aids are available for self-study. Initially, students work with instructors and peers, learning to elicit a history and do a general screening examination. This is followed by extensive experience working with patients under the supervision of practicing physicians, with emphasis on eliciting historical information and gaining experience in physical examination techniques. Demonstration of pathological abnormalities and clinical pathological correlations are emphasized. Taught over three terms. [125 hours] McLaughlin, Sherin.

CCS 611 Computer Literacy. This medical computing elective includes an overview of computer system components, functions and environments; practice in microcomputer applications; computer and software selection and medical computing in the patient care system, office practice, clinical decisions, patient monitoring and medical research. Prerequisites: MED 601, SUR 601. [4 weeks, offered in April and September] Moore.

DERMATOLOGY

DRM 501 Introduction to Dermatology. Fundamentals of diagnosis and treatment of skin diseases. SP [8 hours] Pearson.

DRM 616 Dermatology. Dermatological problems are studied under the direct supervision of the departmental staff. Diseases are considered from the standpoint of etiology, pathogenesis, diagnosis, course and treatment. Skin biopsy applications and techniques as well as histopathologic interpretation are emphasized. Skin therapeutics are taught, stressing biochemical and physiological considerations. FA WI SP SU [4 weeks] Pearson.

FAMILY PRACTICE

FAM 601 Core Clerkship in Family Practice. An intense ambulatory experience in family practice.

Students see patients initially and formulate their assessments and plans under supervision of senior residents and attendings. Participation in comprehensive, longitudinal care is stressed. A lecture series and syllabus supplement the clinical experience. Prerequisite: MED 503. FA WI SP SU [4 weeks] Vanderberg-Dent.

FAM 602 Advanced Family Practice. An intensive ambulatory care experience at one of the Rush affiliated family practice centers. A minimum of 20 hours per week is spent seeing patients with family practice senior residents and faculty. Prerequisite: FAM 601. FA WI SP SU [6 weeks] Schwer.

FAM 610 Family Practice Subinternship. An intensive primary care experience at Christ Hospital. The subintern will function in a capacity similar to an intern, with supervision by a senior resident and faculty physician. Prerequisite: FAM 601, MED 601, SUR 601. FA WI SP SU [4 weeks] Schiver.

FAM 621 Emergency Medicine--Christ Hospital. Students encounter a broad range of emergency problems in all areas of this large emergency service. The student will evaluate and manage patients under the direction of emergency medicine faculty and residents. Prerequisites: all core clerkships. FA WI SP SU [4 weeks] Feldman.

FAM 624 Inpatient Family Practice--West Suburban Hospital. Students work with attending family practice physicians who admit their patients to the West Suburban Hospital family practice teaching service, as well as with the second-year resident assigned to the service. Students will be responsible for comprehensive management of patients under guidance of the resident and attending physicians. Prerequisites: FAM 601, MED 601. FA WI SP SU [4 weeks] McCoy.

FAM 625 Alcoholism Chemical Dependency Unit. Students develop skills in interviewing and managing alcoholic and other chemically dependent patients. A longitudinal interdisciplinary experience is stressed, emphasizing detoxification, rehabilitation and outpatient treatment. Prerequisite: FAM 601. FA WI SP SU [2-4weeks] Sherin, Zitter.

FAM 631. Stress and Illness in an Ambulatory Setting. This is a preceptorship with an experienced clinical psychologist at the Christ Hospital Family Practice Center, seeing patients referred by the residents and faculty of the Center. Clinical problems encountered include stress management, depression, eating disorders, and family counseling. FA WI SP SU [2 weeks] Zitter.

FAM 641 Urban Primary Care. A preceptorship with a family physician in an urban solo practice, emphasizing preventive healthcare and the impact of environmental factors upon health care delivery. Prerequisite: FAM 601. FA WI SP SU [4 weeks] D. Young, B. Welsh.

FAM 642 Community Medicine--Stickney Clinic. A broad-based ambulatory care preceptorship in a community-funded health clinic, serving the primary care needs of southwest suburban Stickney Township. Prerequisite: FAM 601. FA WI SP SU [4 weeks] Largosa.

FAM 643 ANCHOR Primary Care Preceptorship. A preceptorship with a family physician in practice in a prepaid group medical practice (health maintenance organization). Emphasis will be upon health maintenance and upon understanding unique aspects of voluntary prepaid health care. Prerequisite: FAM 601. FA WI SP SU [4 weeks] Nouredin.

FAM 644 Preceptorship in Wholistic Health Care Center. The student will work with a health care team comprised of a family physician, nurse and pastoral counselor. There will be participation in the health care of patients, encompassing medical, psychological and spiritual issues including particular emphasis upon wellness promotion and comprehensive health planning. Prerequisite: FAM 601. FA WI SP SU [4 weeks] Humowiecki.

FAM 645 Suburban Private Practice--Oak Lawn. A preceptorship with an experienced family physician, both at his office in southwest Chicago and at Christ Hospital. The student will work in all areas of this busy physician's practice. Prerequisite: FAM 601. FA WI SP SU [4 weeks] Shobris.

FAM 651 Rural Primary Care--Streator. A preceptorship with an experienced family physician in Streator, Illinois, a town of 15,000 persons 90 miles southwest of Chicago. Prerequisites: FAM 601, MED 601, OBG 601, PED 601. FA WI SP SU [4 weeks] Gottemoller.

FAM 652 Rural Primary Care--Galesburg. A preceptorship with an experienced family physician in the small town of Galesburg, Illinois. Emphasis will be upon the practice of primary care in a rural setting, including use of both local and remote consultative services and community involvement of the physician. Prerequisites: FAM 601, MED 601, OBG 601, PED 601. FA WI SP SU [4 weeks] Currie.

FAM 653 Primary Care--College Health Service. A preceptorship at the Illinois State University Health Service, emphasizing the medical and psychological problems and health care needs of young adults. Prerequisites: FAM 601, MED 601, PED 601, PSY 601. FA WI SP SU [4 weeks] Devitt.

FAM 661 Combined Family Practice/Psychiatry. Students acquire greater skill and experience in interviewing and assessing ambulatory patients; particular emphasis will be placed on crisis intervention and supportive psychotherapy. Students will see patients at the Christ Family Practice Center. Videotapes of student/patient sessions will be reviewed by psychiatry faculty at Rush. Lectures and supervised interviews will also be held at Rush. Prerequisites:

FAM 601, PSY 601. FA WI SP SU [6 weeks] Sherin, Zadyak.

FAM 671 Sports Medicine. An opportunity for in depth exposure to the preparticipation examination and care of the athlete. Students will work well fortified in the disciplines of family practice and orthopedics. Prerequisites: FAM 601, prior orthopedics experience preferred. FA WI SP SU [2-4 weeks] Davison.

GERONTOLOGY

GER 452 The Aging Process: An Inquiry. An introductory course that focuses on the human aging process. Students will develop sensitivity to their own aging as the multiple factors affecting old age are discussed. FASP (2-0-2)

GER 503 Introduction to Social Gerontology. An introduction to social, political and economic forces affecting the older adult in American society. WI (3-0-3)

GER 523 Physiological Aspects of Nutrition in the Elderly. Physiological aspects of food absorption, distribution, metabolism, and excretion relevant to the aging adult. The nutrient intake of the elderly is examined in light of their nutritional requirements. Prerequisite: ANA 462 or PHY 451 or permission of instructor. (2-0-2)

HEALTH CARE EDUCATION

HCE 454 Development of Instructional Media. An overview of communication theory and its relationship to the communication process is used by students to design an instructional media program for a specific target audience. (2-0-2) Block.

HCE 501 Introduction to Teaching and Teaching Strategies. This course is designed to provide essential background of teaching including philosophy, learning theory, learning domains and cognitive style. (2-0-2)

HCE 503 Introduction to Evaluation Approaches and Testing and Measurement. This course is designed to present general evaluation models. Test item construction and clinical performance evaluation will be included. (2-0-2)

HCE 522 Production of a Media Presentation. Under the guidance of biomedical communications staff, the student will coordinate and perform all activities relating to the production of a media presentation. The student is expected to use the finished product to provide information or instruction for a specific target audience. (2) Block.

HCE 525 Professional Communication. The student will explore the purpose, function and application of specified communication techniques to health care settings and will demonstrate skill in their use in practice situations. (3-0-3)

HCE 531 Curriculum Design and Development. Curriculum design, organization, development and trends will be the content of this course. FA SU (2-0-2)

HCE 533 Introduction to Instructional Design in the Health Sciences. The student will develop a basic understanding of the learning process by preparing a teaching unit in a content area of choice for a specified group of learners; by relating selected principles of learning to adults; and by evaluating teaching effectiveness. (3-0-3)

HCE 541 Administration of Nursing Education. An overview of selected topics covering trends and issues, principles, concepts and theories of administration; key components of nursing educational administration and preparation for administrative leadership will be presented. FA (2-0-2)

HCE 571 Writing for Publication. Emphasis is on the writing process, beginning with the gestation of an idea through completion of a potentially marketable article for a nursing or professional journal. WI SU (2-0-2)

HCE 581 Introduction to Research. The student develops skill in critically analyzing research studies, formulating research problems, designing research methods, using descriptive and inferential statistics to interpret data, analyzing data using parametric and nonparametric statistical models and developing beginning competencies in the use of computers in research. (3-3-4)

HCE 583 Clinical Investigation I. Designed to provide a basis for the utilization of the scientific research method in professional practice. Content will include concepts and specific techniques, methods or strategies inherent in the research process. The interdependence of these research activities, rather than the mechanically consecutive sequences of procedures, will be emphasized. Prerequisite: introductory statistics. FA SP (2-0-2)

HCE 584 Clinical Investigation II. A continuation of HCE 583. WI SU (2-0-2)

HCE 595 Teaching Practicum. Students will assist a clinical teacher in teaching undergraduate nursing students during a field experience. Prerequisite: HCE 501 or 503. WI SP (2-6-4)

HEALTH AND SOCIETY

H&S 361 Issues in Holistic Health. This course focuses on current concepts and practices in the holistic health movement. It includes the historical development of holistic health philosophies and an overview of alternative methods/techniques/practices of health care, self-care management, ethnic/cultural influences and consumer education. The health care provider's role in assisting the client to integrate both holistic and conventional health practices is emphasized. (2-0-2)

H&S 461 Culture, Race, Poverty and Health Care. Seminar and discussion on the influence of race, values, stereotypes, and poverty on health care delivery. (2-0-2)

HEALTH SYSTEMS MANAGEMENT

NOTE: Faculty from several programs at Rush offer HSM courses. Some HSM courses are limited or directed to students in specific programs. Additional information regarding enrollment restrictions is available in the quarterly timetable of courses.

HSM 301 Health Care Management. Organizational design and managerial processes of planning, organizing, directing and controlling, as well as the dynamics of managerial jobs are studied. Emphasis is on management strategies and techniques in the area of health care delivery. (3-0-3) Short.

HSM 502 Health Care Organization I. This course is intended to provide students with a learning structure that enables them to become reasonably well versed in the factors, forces and dynamics of both the macro and micro environments in which various health care institutions operate. The interrelationships among various trends and forces likely to shape the roles and responsibilities of health care institutions in future years will be stressed. (3-0-3) Lerner.

HSM 503 Health Care Organization II. This course is designed to provide students with a comprehensive working knowledge of the institutional perspective of health services management and dynamics of the health financing, policy and system performance arenas in which various health care institutions operate. Students will become familiar with key provider groups, the organization of financing, health information sources, health policy and regulation, quality assessment/assurance and system performance issues. (3-0-3) Sochaki.

HSM 504 Management Issues in Nursing. The theoretical and practical aspects of several current issues in nursing management are explored. FA SP (3-0-3) Moore.

HSM 506 Medical Sociology. An examination of the sociological, psychological, and behavioral dynamics of practitioners and patients within the health care delivery system. (4-0-4) Counte.

HSM 507 Epidemiology. An understanding of the principles and methodologies of epidemiology, research design and program evaluation emphasizing application to the planning and management of health care services. (4-0-4) Oleske.

HSM 508 Theories of Organizational Behavior. This course will examine the major theories that have shaped the discipline of organizational behavior. (2-0-2)

HSM 515 Human Resources Management I. An understanding of the human relations skills required of the health systems manager in an environment filled with both federal and state legal constraints. Skills acquired include motivating employees, appraising performance, dealing with disciplinary problems and employee counseling. (4-0-4) Lewandowski.

HSM 516 Human Resources Management II. Examination of the labor-management relationship including the employment and labor laws impacting on both the union and nonunion work force. Provides an understanding of unions prevalent in health care, strategies in confronting an organizing campaign, processes of collective bargaining and effective contract administration. SP SU (3-0-3) Lewandowski, Bernat.

HSM 522 Multi-Institutional Arrangements. An analysis of the goals and organizational structures of multihospital systems and an understanding of causes for this trend, barriers to development, advantages/disadvantages and future trends. (3-0-3) Lippner.

HSM 526 Nursing Management: Planning for the Delivery of Service. This course will explore the principles of planning inherent in the development and organization of systems to deliver nursing care. WI SU (3-0-3) Carlson, Fruth, Cassini.

HSM 530 Foundations of Economic Analysis. This course will provide students with an understanding of microeconomic theory so that they may analyze current economic problems and address economic problems not yet encountered. (4-0-4) Glandon.

HSM 531 Finance I. Understanding the concepts and principles of accounting and finances and their application in health systems management. (4-0-4) Frankenbach.

HSM 532 Finance II. Provides an understanding and knowledge of health care services' payment policies, including sources of payment (e.g., Medicare, Medicaid, Blue Cross), emerging payment arrangements (e.g., DRGs, PPOs, HMOs) and the application of budgeting principles to health care institutions. (4-0-4) Butler.

HSM 533 Health Economics. Application of economic tools and theories to the delivery of health care services. (3-0-3) Kaatz.

HSM 536 Corporate Finance. Provides the financial tools and ability to understand the principle issues of corporate finance and financial management. The course shifts the students' focus from a micro to macro, or corporate, view of financial management. The overall objectives of the course are to understand the roles, functions and responsibilities of financial officers in managing a health care institution; be able to identify and analyze corporate finance problems and issues in the management of health care institutions and be able to evaluate the financial

performance of institutions in asset and debt management. (3-0-3) Necas.

HSM 539 Finance Seminar. The application of knowledge and skills acquired in the HSM finance course and the integration of decision-making processes. Students make strategic planning, staffing, capital financing, pricing and cash management decisions for a hospital under changing environmental trends and payment policies. These decisions will affect the hospital's financial position relative to other hospitals in the community through a computer simulation model. (3-0-3) Butler.

HSM 543 Health Law. Provides a systematic and comprehensive knowledge of law as it impacts health care delivery systems. Students acquire an understanding of contract law, tort law, corporate law, labor law and civil procedure. (4-0-4) Brown.

HSM 545 Organizational Analysis. An introduction to the study of organizations, including structures, processes and human behavior. This course focuses on theories and concepts in such areas as organizational research, motivation, stress, leadership, group dynamics, roles, decision making, technology, communication, ethics and change. (3-0-3) WI Trufant, SU Schmidt.

HSM 546 Advanced Organizational Analysis. The student will examine several comprehensive theories of organization and environment and extract from them practical management tools that can be applied to any management setting. Topics covered are: Structure and Technology; Culture and Innovation; Environment and Strategic Choice. (3-0-3) Carvalho.

HSM 553 Computers for Health Systems Managers. The student will acquire technical and conceptual computer skills and an understanding of the role of data processing in hospital administration. Discussion sessions will focus on computer applications, hardware components and problem solving with computers. The student will use SPSS-X on the IBM mainframe computer as well as an electronic spreadsheet and word processor on a personal computer. Students may also learn an additional mainframe or microcomputer package as part of a required class project. (4-0-4) Mon.

HSM 554 Decision Support Systems. Knowledge and understanding of information systems supporting both the management of health care and the delivery of patient care. (4-0-4) Menning.

HSM 557 Quality Assurance in Health Care. This course will provide the student with a comprehensive overview of the major components of a quality assurance program in various health care delivery settings, such as hospitals, mental health centers, HMOs and ambulatory care and long-term care institutions. (3-0-3) Sochacki.

HSM 558 Ambulatory Care. An overview of ambulatory health systems, marketing and

management techniques, and professional and administrative issues. (3-0-3) Brundage, Kempinski.

HSM 561 Strategic Planning and Budgeting. This course will provide an understanding and knowledge of strategic planning and budgeting for health care institutions. Approaches to developing strategic and operational plans will be explored. The basic accounting concepts learned in Finance I will be translated into specific financial applications and management decisions via the budgeting process. (3-0-3) Holloman.

HSM 562 Planning II: Marketing Management. An understanding and working knowledge of marketing theory, terminology, techniques and analytical approaches for marketing health services. (3-0-3) Newman.

HSM 564 Developing a Market Plan. Advanced concepts and principles of marketing, market research, and marketing communications as they apply to the management of health care service organizations. Includes an exploration of the market forces that influence and motivate the behavior of providers and consumers in the health care industry. Formulation of market plans will be conducted by self-directed projects and presentation. Prerequisites: HSM 562 or permission of instructor. (3-0-3) Newman.

HSM 567 Health Maintenance Organizations. An overview of health maintenance organizations in theory and practice. The variations in model types and the various external forces affecting their development and evolution will be explored. (3-0-3) Lourie, Austin.

HSM 571 Systems of Health Care. Seminar course on the study of the health care delivery system in the U.S. Particular emphasis on identifying historical forces that have shaped the current system of health care; the organization of the hospital and the medical center; current manpower roles in health care and the current issues that face the health system today. Discussion will focus also on external forces and controls that substantially affect the health care system. (2-0-2)

HSM 574 Health Care Delivery Systems. This course provides an overview of the scope, structure and role of the health care delivery system and its relationship to the external environment. Management function and technique are studied within this context. Limited to clinical nutrition students or permission of instructor. (3-0-3)

HSM 576 Ethics for Health Care Managers. Same as REL 576. (3-0-3)

HSM 585 Quantitative Methods I. The acquisition of statistical skills such as graphical methods, descriptive statistics, probability theory and nonparametric comparisons. SPSS is used to facilitate data analysis. (4-0-4) Thompson.

HSM 586 Quantitative Methods II. Topics include simple and multiple regression analysis, time series, forecasting, basic systems analysis, and cost benefit analysis. (4-0-4) Thompson, Wellman.

HSM 587 Quantitative Methods III. Intermediate and advanced quantitative techniques as applied to management decision making and systems analysis. Topics include network theory, inventory theory, linear programming, decision theory, queuing theory and simulation. (4-0-4) Wellman.

HSM 595 Graduate Seminar. An analysis of selected topics and issues in contemporary health care with the broad participation of faculty and eminent leaders in the field. (1-0-1) Counte, Sinioris.

HSM 597 Graduate Project. A two-quarter course that provides the second-year HSM student with the opportunity to apply problem-solving techniques and evaluation methods. The student conducts an applied management study at a Chicago-area health care organization. Major emphasis is placed on developing students' report writing and oral presentation skills. (8-0-8) Counte.

HEMATOLOGY

HEM 301 Hematology I. Study of normal hematopoiesis, including development, metabolism, kinetics, and function of red cells, white cells, and platelets and an introduction to the various associated hematologic disorders. Fundamentals of hemostasis, including coagulation pathways and laboratory procedures that evaluate these mechanisms, are covered. Includes laboratory experiences dealing with basic routine tests performed in a clinical hematology laboratory, such as simple automated cell counting, blood smear morphology and reticulocyte counts. (3-6-5)

HEM 425 Hematology II. Review of normal hematopoiesis and an in-depth study of erythrocyte disorders, their etiologies, pathophysiology, clinical features and significant laboratory findings. Prerequisite: HEM 301. (2-0-2)

HEM 426 Hematology III. Continuation of HEM 425 with an in-depth study of leukocyte and coagulation disorders that covers etiology, clinical features and significant laboratory findings. Prerequisite: HEM 425. (2-0-2)

HUMANITIES

HUM 461 Physician as Writer. An exploration of selected fiction, chronicles and autobiographies by distinguished twentieth century physician-writers (including William C. Williams, Chekhov, and Azuela). Focus will be on writers' unique responses to questions of medical ethics, involvement in social issues and doctor-patient relationships, as well as on physicians as philosophers and humorists. (2-0-2) Vidaver-Cohen, Cohen.

HUM 462 Physician on Stage. A stimulating new look at the physician--clinician and scientist--as major character in distinguished nineteenth and twentieth century drama. The plays focus on the physician's self-image; encounters with moral dilemmas; interactions with patients, colleagues and society and on specific medical disorders. Includes works by Peter Shaffer, Tennessee Williams, Eugene O'Neill, Henrik Ibsen and Frederic Durrenmatt. (2-0-2) Vidaver-Cohen, Cohen.

HUM 463 Disease as Subject in Contemporary Literature. An examination of the depiction of disease in outstanding fiction and poetry as well as in memoirs, journals and personal narrations of some distinguished contemporary writers who faced disease and analyzed their experiences with acute perception. Works by Albert Camus, Andre Gide, Eleanor Clark, John Updike, Thomas Mann, John Berryman and Katherine Anne Porter will be considered. (2-0-2) Vidaver-Cohen, Cohen.

HUM 464 Benjamin Rush and Sigmund Freud: Biography and Autobiography. Elective seminar focusing on the lives of Drs. Freud and Rush through a close look at letters, writings and autobiographical statements. In discussion and lecture the class will construct from these autobiographical materials the beginning of biographical statements and will consider the method and purpose of biography. (2-0-2) Catchpole.

IMMUNOLOGY

IMM 301 Basic Immunology. An introduction to the basic concepts and terminology of immunity including development, structure and function of the lymphoid systems; the basis of antigenicity; antibody structure; methods of detection and measurement; mechanism of cellular immunity; white cell function; hypersensitivity reactions; the complement system and mechanisms of immune suppression and tolerance. Methods of laboratory evaluation of humoral and cellular immunity are introduced. (3-0-3)

IMM 402 Clinical Immunology. Study of clinical and applied immunology as it relates to the role of the immune response in production of disease; primary and secondary immunodeficiency, atopy and other forms of hypersensitivity, autoimmunity, transplantation and tumor immunity. The use of immunology as a diagnostic, prognostic and therapeutic aid is studied. Prerequisite: IMM 301. (2-0-2)

IMM 403 Clinical Serology. Students will learn to apply the fundamental concepts of antigen-antibody interactions to routinely performed assays of syphilis and nonsyphilis serology. Laboratory sessions cover proficiency in performance and familiarity with purpose, principles and interpretations of the following tests: RPR, CSF-VDR, TPA, FTA-ABS, Monospot, Monotest, Heterophile, ASO, AHT, ANTI-DNAase B, RF Latex, RF SCAT, Anti-Thyroglobulin and Anti-Microsomal. Prerequisite: IMM 301. (2-6-5)

IMM 431 Immuno-hematology. Blood group antigens and antibodies from the discoveries of Landsteiner in 1900 to the present day are studied. Blood banking procedures involved in drawing, testing, storing and transfusing whole blood and its components are discussed. The laboratory section will deal with the basic blood bank procedures, including ABO grouping, RH typing, compatibility testing and special antibody studies. Prerequisite: IMM 301. (3-6-5)

IMM 501 Immunology. An introduction to medical immunology with emphasis on basic concepts and principles, interwoven with a study of their clinical applications. SP (5) [54 hours] Lint.

IMM 502 Introduction to Experimental Immunology. A graduate introductory course covering basic concepts in experimental immunology including basic laboratory techniques. FA (3-2-4) Lint.

IMM 521 Basic and Clinical Immunology. A comprehensive introduction to immunology with emphasis on basic concepts and principles and on clinical applications. SP (5-0-5) Lint.

IMM 531 Cellular Immunology. A comprehensive course in cellular immunology, including lymphocyte ontogeny, cellular interactions, effector cell functions, immunogenetics and tumor immunology. Alt. WI (5-0-5) Gebel.

IMM 542 Biology of Membranes. A comprehensive examination of the physical, chemical, biochemical and immunological forces that contribute to the structure and function of membranes. Concepts include receptors and transmembrane signalling. Alt. SP (4-0-4) Bremer.

IMM 543 Molecular Immunology. A comprehensive examination of immunoglobulins and antigens with special emphasis on how structure relates to immune function and on the molecular basis of antibody diversity and complement reactivities. Alt. WI (4-0-4) Potempa.

IMM 555 Inflammation. A detailed examination of IgE structure and regulation mechanisms of histamine release from human cells and allergens and allergic phenomena, including the mechanisms in the inflammatory response and the interrelationships between the coagulation, fibrinolytic, and kinin systems. Alt. SP (4-0-4) Thomas.

IMM 556 Host Defense. Immunological aspects of host defense against microorganisms. Concepts will include the structure and function of the complement system, phagocytic cell function and nonspecific barriers to infection. Alt. SP (4-0-4) Lint.

IMM 561 Clinical Immunology. A review of critical topics in clinical immunology from the clinical and pathologic viewpoints. Alt. SP (4-0-4) Landay, Luskin.

IMM 571 Laboratory Tutorial. Individual program designed to acquaint the student with research protocols and interests within the department. (v-v-v) Staff.

IMM 590 Special Topics. Detailed independent study of selected contemporary topics in immunology. (v-v-v) Staff.

IMM 598 Predissertation Research. Research credits prior to acceptance to doctoral candidacy. (0-v-v) Advisor.

IMM 599 Independent Study. Specialized course work designed around the needs of an individual student. (v-v-v) Staff.

IMM 699 Dissertation Research. Research credits after admission to candidacy. (v-v-v) Advisor.

INTERNAL MEDICINE

MED 501, 502, 503 Clinical Pathophysiology I, II, III. Serving as a bridge between the basic sciences and clinical medicine the course helps to make the student conversant with the limits of biochemical and physiologic responses under a variety of stresses and disease states. Emphasis is in three basic areas: abnormal, general cellular biology, homeostasis and organ system pathophysiology. The course closely coordinates with topics in the pathology course and also with didactic material to be presented during the third-year clinical program. FA WI SP [215 hours] Lewis.

MED 601 Core Clerkship in Internal Medicine. The medicine clerkship is designed to provide the student with experience in basic clinical skills and knowledge of internal medicine, and to provide a supervised program of instruction in all modes of medical care. Each student is expected to participate in all floor functions and do extensive investigation of clinical problems assigned. Prerequisite: CCS 502. FA WI SP SU [12 weeks] Rosen.

MED 605 Geriatric Medicine. Identification of the problems seen most commonly in geriatric patients and insight into the approach and management of these problems. Includes the following: drug effects and interaction in the elderly; organic brain syndrome; approach to rehabilitation of the stroke patient; problems encountered in nursing home patients; urinary incontinence and osteoporosis and its consequences. Prerequisite: MED 601. FA WI SP SU [4 weeks] Salzman.

MED 610 Internal Medicine Subinternship. Students function at an advanced level, doing histories and physical examinations, diagnostic evaluations, and initiation of appropriate therapy. There is close supervision by the staff of the Department of Internal Medicine. The course is primarily intended for students desiring additional clinical experience in internal medicine. Prerequisite: MED 601. FA WI SP [4 weeks] Rosen.

MED 611 Clinical Cardiovascular Medicine. Includes the study of the diagnostic spectrum of cardiac evaluation: bedside assessment, electrocardiography, vectorcardiography, phonocardiography, ultrasound, cardiac catheterization, coronary angiography and exercise testing. At network hospitals, experience in bedside diagnostic and noninvasive evaluation is emphasized. Prerequisite: MED 601. FA WI SP SU [4 weeks] Liebson (Rush), Lubell (Mount Sinai), O'Donoghue (West Suburban), Cotts (LaGrange).

MED 612 Medical Intensive Care Unit. Experience in the recognition and management of medical emergencies, particularly the use of temporary pacemakers, bedside hemodynamic monitoring and respirators, and management of renal emergencies and cardiac arrhythmias. Prerequisite: MED 601. FA WI SP SU [4 weeks] Balk.

MED 613 Introduction to Cardiovascular Research. Student programs are individually planned with emphasis on understanding basic research techniques rather than on the accomplishment of a specific research project. Students participate in the research program of the Section of Cardiology, including projects in human hemodynamics, cardiogenic shock, noninvasive studies, myocardial metabolism, cardiovascular electronics and computer application. Prerequisite: MED 601. FA WI SP SU [8-12 weeks] Messer.

MED 615 Emergency Medicine. Students will see patients in all areas of the emergency room under the supervision of attendings and residents. Emphasis will be on complaint-oriented history taking, performance of a pertinent physical exam, recording the findings and discussion of the patient with the supervisor who may repeat some of the exam as necessary. Prerequisites: MED 601, SUR 601. FA WI SP SU [4 weeks] Hanashiro.

MED 617 Echocardiography. The use of ultrasound to assess clinical problems in cardiology. Students develop expertise in evaluating cardiac function by means of this noninvasive tool. Areas of concentration include left ventricular function, valvular heart disease and common congenital heart disease problems. By arrangement with instructor. Prerequisite: FAM 601 or MED 601. FA WI SP SU [2 or 4 weeks] Liebson.

MED 621 Clinical Endocrinology and Metabolism. Endocrine and metabolic disorders are studied under the direction of the clinical faculty. Regular departmental conferences and seminars supplement clinical work, which is primarily with hospitalized patients. Prerequisite: MED 601. FA WI SP SU [4 weeks] Bagdade.

MED 626 Clinical Nephrology. The clinical diagnosis and management of patients with renal disease as well as various fluid, acid-base, and electrolyte abnormalities are studied. In addition, the course is directed toward the proper interpretation of pathophysiologic findings and the practical

management of various disorders involving the excretory system and body fluids. Prerequisite: MED 601. FA WI SP SU [4 weeks] Lewis.

MED 632 Digestive Diseases. Hepatology and gastroenterology are studied with demonstrations of gastroscopies, colonoscopies, small-bowel biopsies, liver biopsies, esophageal motility studies and proctologies. Students extensively review the literature on subjects related to cases seen during the course of the rotation. Prerequisite: MED 601. FA WI SP SU [4 weeks] Schaffner.

MED 636 Clinical Hematology. Regular review of case studies with the faculty provides the basis for in-depth study of clinical diagnostic hematology, particularly through study of bone marrows and other diagnostic facilities of the laboratory. Prerequisite: MED 601. FA WI SP SU [4 weeks] Knospe.

MED 646 Clinical Infectious Disease. Students are expected to master basic principles of diagnosis and management of patients with infections. Appropriate use of diagnostic microbiology, differential diagnosis of febrile patients and appropriate selection of chemotherapeutic agents are taught during case presentations on daily rounds. Prerequisite: MED 601. FA WI SP SU [4 weeks] Goodman.

MED 651 Clinical Rheumatology. Emphasis is on fundamentals of joint examination, observation and performance of laboratory examinations on synovial fluid and familiarity with the spectrum of laboratory procedures useful in rheumatologic diagnosis and treatment. The interdisciplinary approach relies heavily on contributions of immunology, orthopedics, diagnostic radiology, physiotherapy and occupational therapy. Prerequisite: MED 601. FA WI SP SU [4 weeks] Schnitzer.

MED 661 Clinical Oncology. Patients seen by the Section of Medical Oncology provide an ample and varied spectrum of oncological problems. Various therapeutic approaches and complications occurring in the course of the disease are discussed. The program stresses the importance of the combined interdisciplinary approach, using the resources of the departments of surgery, therapeutic radiology, pathology and nuclear medicine. Prerequisite: MED 601. FA WI SP SU [4 weeks] Harris, Rossof.

MED 671 Clinical Pulmonary Medicine. The management of patients with pulmonary disease provides the focus for study of clinical management, interpretation and use of pulmonary function and ventilatory studies and gas management. The essentials of pulmonary physiology are emphasized. Prerequisites: MED 601, SUR 601. FA WI SP SU [4 weeks] Rosen.

MED 677 Clinical Immunology/Allergy. Students work directly with house staff and inpatients, functioning as primary allergy/immunology consultants. Under the supervision of residents, fellows and attending staff, students formulate a diagnostic and treatment plan

and make formal and informal teaching rounds on all allergy/immunology service in patients. Multiple teaching conferences are held, many of which are directed primarily to the medical students. Prerequisite: MED 601. FA WI SP SU [4 weeks] Luskin.

MEDICAL PHYSICS

MPH 457 Radiation Safety of Radioactive Materials. This course reviews basic nuclear physics' and health physics' principles and practices, regulations and instrumentation for the safe use of radioactive material. SP (2-0-2) Chung-Bin, Majewski.

MPH 458 Radiation Physics Laboratory. A study of basic physics' principles and applications with laboratory exercises on techniques and instrumentation for nuclear radiation detection and measurement as they relate to nuclear physics and radiation safety of radioactive materials. Prerequisite: MPH 457. WI SP (1-3-2) Majewski.

MPH 460 Introduction to Radiation Safety and Diagnostic Radiological Physics. The course covers medical x-ray protection for energies up to 10 MeV, x-ray equipment design and use. FA (2-v-3) Chung-Bin.

MPH 461 Physics of Diagnostic Radiology. An intermediate course in physics for residents in diagnostic radiology. Topics will include CT and Ultrasound. Prerequisite: MPH 460. WI (3-0-3) Chung-Bin.

MPH 463 Physics of Magnetic Resonance Imaging. This course is a basic introduction to the physical principles of MRI, with emphasis on proton MRI. Topics covered will include fundamentals of magnetic resonance, relaxation times and the basis for imaging techniques. SP (2-0-2) Groch.

MPH 464 Concepts in Magnetic Resonance Imaging. A basic conceptual overview of magnetic resonance principles as applied to image formation is provided. Fundamental proton magnetic resonance concepts as well as basic imaging principles will be discussed on a level appropriate for medical residents in radiology. FA (1-0-1) Groch.

MPH 465 Computer Science Applied to Imaging. The objective of this course is to present the fundamentals of computer science to physicians whose specialty is in diagnostic imaging. SP (2-1-2) Chung-Bin, Staff.

MPH 471 Physics of Nuclear Medicine I. The course covers mathematics for nuclear medicine, nuclear reactions, decay schemes, half-life, decay series, interaction of radiation with matter and detectors used in nuclear medicine. Imaging instrumentation, including scintillation camera, emission tomography and application of the computer to nuclear medicine, is covered. WI (3-0-3) Groch.

MPH 475 A Workshop in Radiopharmaceutical Science. This course covers production of radionuclides, generators; formulation and Q.C. of tracers for 16 organ localization, in vitro and in vivo studies; dosimetry; FDA and safe handling. Compounding, biodistribution, and imaging will be studied in the laboratory. FA WI SP (1-0-1) Rayudu.

MPH 481 Introduction to Therapeutic Radiological Physics. The course covers basic physics, definition and measurement of dose, physical and clinical dosimetry and quality assurance. FA (3-0-3) Kartha.

MPH 482 Therapeutic Radiological Physics. The five "p's" of radiation therapy physics are examined: prescription, physical dose, planning, precision and pattern of treatment outcome. Additionally, interactions of x-rays and gamma-rays; measurement of exposure, calibration of high-energy photon and electron beams and dose distributions for external-beam therapy are studied. Prerequisite: MPH 481. WI (3-0-3) Kartha.

MPH 483 Dosimetry Applied to Therapeutic Radiology. This course is designed for therapeutic radiology trainees, including residents, and is organized as a rotation in the Section of Medical Physics. The laboratory exercises consist of routine dosimetry computations in clinical radiotherapy. Prerequisite: MPH 481. SP (0-8-4) Kartha.

MPH 484 Brachytherapy Physics. This course is designed for residents in therapeutic radiology and graduate students. Topics include basic physics of radioactivity and use of radioactive isotopes in clinical radiotherapy. Prerequisite: MPH 482. SP (2-0-2) Kartha.

MPH 486 Introductory Hyperthermia. This course will cover the physical and biological mechanisms of hyperthermia as well as the commonly used methods for delivery of heat energy for cancer therapy. SP (2-0-2) Urbon.

MPH 488 Physics Applied to Dermatology. The course covers basic physics, interaction of radiation with matter, definition and measurement of dose for low-energy x-rays and megavoltage electrons which are used for dermatological treatment. WI (1-0-1) Lanzl.

MPH 490 Medical Radiological Physics Review. An intensive review course in all branches of medical radiological physics for preparation for the American Board of Radiology Certification Examination. Prerequisites: MPH 461, 471, 482. SP (3-0-3) Chung-Bin, Staff.

MPH 491 Introduction to Computers. The course covers basic components and a systematic presentation of building blocks of computer hardware and software for beginners. SP (2-2-3) Wachtor.

MPH 492 Therapeutic Radiology Physics Review. An intensive review course for therapeutic radiology residents and graduate students in medical physics in preparation for the American Board of Radiology Certification Examination. SU (2-0-2) Kartha.

MPH 501 Radiation Physics. This course provides a rigorous examination of the interaction with matter of high-energy particles: photons, electrons, neutrons and heavy-charged particles. FA (3-0-3) Hubbard, Jette.

MPH 502 Radiological Physics I. The course covers design and operation of accelerators; radiation quantities and units including stochastic and nonstochastic quantities; ion collection and recombination and dosimetry systems used in therapeutic radiology and radiobiology. Prerequisite: MPH 501. WI (4-0-4) Lanzl.

MPH 503 Radiological Physics II. Continuation of MPH 502. SP (4-0-4) Lanzl.

MPH 504 Topics in Radiation Dosimetry. The course covers track-etching phenomena, registration of fission fragments, alpha particles and recoil nuclei; wall-less detectors in microdosimetry; Katz and Kelleher-Rossi theories of particle tracks and thermo-photoluminescence. Prerequisite: MPH 502. SP (3-0-3) Lanzl, Rozenfeld.

MPH 505 Radiological Physics Laboratory. This is a practical course directed towards understanding of the instruments, apparatus and facilities used in applied radiation work. This course will include carrying out scientific evaluation and essay-type reporting. Prerequisite: MPH 502. FA WI SP (v-v-v) Jayaraman, Kao, Chung-Bin, Lanzl, Rozenfeld, Broadbent.

MPH 531 Radiation Biology. The course will consider ionizing radiation effects on single cells, organized tissue and known effects on man. Emphasis will be put on those radiobiological principles that closely relate to cancer treatment. WI (3-0-3) Hanson.

MPH 542 Radiation Oncology. This course will develop the basic concepts and principles of nonsurgical cancer management. The natural history of cancers in various organs will be reviewed and therapeutic strategies developed based on the pathophysiology of different cancer sites. WI (2-0-2) Hendrickson, Lee, Murthy, Staff.

MPH 559 Radiation Protection. This course covers advanced topics in radiation protection, technical approaches for minimizing the dose, authorization to use radioisotopes, responsibilities of users, standards for radiation exposure, airborne contamination limits, transportation of radionuclides, formulation of standards, medical findings on individuals exposed to radiation, sources producing population exposure and federal and state regulations. Prerequisite: MPH 459. FA (3-0-3) Chung-Bin, Lanzl, Majewski, Rozenfeld.

MPH 561 Physics of Diagnostic Radiology. This course covers x-ray generators; recording systems; grids; fluoroscopy; image intensifier TV systems, etc. In addition, an introduction to transfer function analysis of imaging systems is given. (3-0-3) Jette.

MPH 565 Transfer Function Analysis. Starting with a rigorous presentation of Fourier transform theory, this course develops transfer function analysis for application to imaging systems. SP (2-0-2) Jette.

MPH 571 Physics of Nuclear Medicine II. The course covers production of isotopes, radiation detection, pulse height analysis, counting statistics, imaging theory, Fourier analysis, scintillation camera, collimation of radiation, image recording, noise analysis, image processing, quality assurance, radiation safety, evaluation of image quality, digital computers in nuclear medicine, dynamic and functional imaging, emission computed tomography, biokinetics and compartmental modeling and radioimmunoassay. Prerequisite: MPH 471. (3-0-3) Groch.

MPH 575 Nuclear Science Techniques as Applied to Biology and Medicine I. This course covers radioactivity, measuring devices, production modes; nuclear reactor, cyclotron, generators; radiochemistry, labeling (^3H , ^{14}C , ^{125}I) and autoradiography, body counting, NAA. FA (2-0-2) Rayudu.

MPH 576 Nuclear Science Techniques as Applied to Biology and Medicine II. This course covers labeling ($^{99\text{m}}\text{Tc}$, ^{131}I , ^{75}Se , ^{11}C , ^{13}N , ^{18}F) & Q.C.; tracers for 16 organs; applications in nuclear medicine, therapy, in vitro, hematology; dosimetry; radiation safety; licensing and FDA. Prerequisite: MPH 575. WI (2-0-2) Rayudu.

MPH 590 Medical Physics Research Seminar. This seminar serves as a forum for review of ongoing research by the faculty, appropriate staff members, fellows and graduate students. FA WI SP (2-0-1) Staff.

MPH 597 Introduction to Research. The student will undertake a directed project with a faculty member as an introduction to research. FA WI SP SU (v-v-v) Lanzl, Chung-Bin, Kartha, Rozenfeld, Jette.

MPH 598 Research. Under the guidance of a faculty member and committee, the student originates, proposes and executes basic or clinical research. FA WI SP SU (v-v-v) Lanzl, Chung-Bin, Kartha, Rozenfeld, Jette, Hubbard.

MPH 599 Independent Study. The student will undertake a creative project under the supervision of a faculty member. FA WI SP SU (v-v-v) Lanzl, Chung-Bin, Kartha, Rozenfeld.

MPH 699 Dissertation Research. Postcandidacy research by arrangement with staff. FA WI SP SU (v-v-v)

MEDICAL TECHNOLOGY

MTK 303 Body Fluid Analysis. Analysis of various body fluids with emphasis on the theory and practice of clinical procedures. Component topics will include the analyses of urine, gastric juices, cerebral spinal fluid, feces, semen, transudates and exudates. (3-6-5)

MTK 304 Basic Laboratory Skills. Study and practice of basic laboratory skills used in the various clinical laboratory areas. Topics covered include instrumentation, proper use and maintenance; manual skills such as pipetting, titrating and venipuncture; preparation and standardization of reagents and laboratory calculations. (3-12-7)

MTK 305 Patient Care Techniques. Clinical experience in the hospital patient care areas includes blood collection, specimen handling and processing procedures, as well as interaction with patients and professional staff of the hospital. Prerequisite: MTK 304. (0-6-2)

MTK 421 Practicum in Clinical Chemistry. Rotation through the hospital clinical biochemistry laboratories. The course includes the application of basic skills learned in student chemistry laboratory, instrumentation and advanced methodologies. (0-24-8)

MTK 422 Practicum in Hematology. Rotation through the hospital clinical hematology laboratories. Application of basic skills learned in student laboratory, instrumentation and advanced methodologies are included. Radiohematology, bone marrow techniques and coagulation are also covered. (0-24-8)

MTK 423 Practicum in Immunology. Rotation through the hospital clinical immunology laboratory. Application of basic skills learned in student laboratory, instrumentation, and advanced methodologies are emphasized. (0-16-4)

MTK 424 Practicum in Microbiology. Rotation through the hospital clinical microbiology laboratories. Application of basic skills learned in student laboratory, instrumentation and advanced methodologies are emphasized. (0-24-8)

MTK 425 Practicum in Immunohematology. Rotation through the hospital blood bank laboratory. Application of basic skills learned in student laboratory, instrumentation and advanced methodologies are emphasized. (0-16-4)

MTK 441 Seminar in Medical Technology. Discussion of current topics in medical technology and associated fields. Students present abstracts. (2-0-2)

MICROBIOLOGY

MIC 311 Diagnostic Bacteriology. Special emphasis is on diagnostic procedures employed in the

clinical bacteriology laboratory, such as specimen collection, isolation and identification of medically important bacteria, antibiotic sensitivity testing and determination of serum antibiotic levels. Course includes laboratory exercises associated with these various concepts. Development of proficient skills in the various techniques is stressed. SP (3-9-5) Kaplan.

MIC 411 Parasitology, Mycology and Virology.

This course provides clinical background in mycology, parasitology and virology. Emphasis is on the disease involved and on diagnostic procedures used in the laboratory. The laboratory portion consists of identification, specimen collection and processing of medically important viruses, fungi and parasites. Prerequisite: MIC 311. SP (3-6-5) Kaplan.

MIC 451 Microbiology Concepts. An introduction to the morphological and physiological characteristics of infectious agents of importance in human disease. SP (5-1-5) [55 hours] Kaplan, Peebles.

MIC 501 Clinical Bacteriology. The experience provides rotation in each section of the diagnostic bacteriology laboratory with emphasis on laboratory identification of bacteria. Prerequisite: MIC 451. (v-v-v) [4 weeks] Landau.

MIC 505 Basic Microbiology. A graduate introductory course covering basic concepts and laboratory techniques in experimental bacteriology and virology. FA (3-2-4) Peebles.

MIC 523 Molecular Genetics. Contemporary study of topics in gene organization, transcription, translation and gene regulation. Alt. SP (4-0-4) Ogston.

MIC 531 Virology. Advanced study of human and animal viruses and their interactions with cells. Prerequisite: MIC 451. Alt. WI (4-0-4) Peebles.

MIC 561 Clinical Microbiology for Graduate Students. A review of critical topics in clinical microbiology from the clinical and pathologic viewpoints. SP (3) Landau, Peebles.

MIC 590 Special Topics. Detailed independent study of contemporary topics in microbiology. (v-v-v) Staff.

MIC 599 Independent Study. Specialized course work designed around the particular needs of an individual student. (v-v-v) Staff.

MIC 610 Clinical Microbiology. Students will rotate through each of the basic areas of the microbiology laboratory. Specimen handling, laboratory identification of organisms and clinical correlation are covered. Permission of instructor. Prerequisite: any core clerkship. [2 weeks] Landau.

NEUROLOGICAL SCIENCES

NEU 451 Medical Neurobiology. An integrated approach to the central and peripheral nervous system

from an anatomic, physiologic and neurochemical standpoint is presented. Based on neuroanatomy, major systems are developed and discussed in terms of anatomic arrangement, physiologic functioning and related synaptic pharmacology. In all systems clinical lectures highlight the practical applications of basic science concepts in patient evaluation and management. (4-3-5) [78 hours] Kerns, Zimmerman.

NEU 501 Introduction to Neuroscience. The physiology of neurons and glia, synaptic processes, sensory receptor physiology, spinal cord, cerebellum and motor control, peripheral mechanisms in sensory systems and higher functions of the nervous system. Neuroanatomical concepts will be correlated to the physiology. Prerequisite: ANA 465. WI (4-0-4)

NEU 601 Core Clerkship in Neurology. Patients with various neurological disorders are studied; invasive and noninvasive techniques are observed and practiced. Neuropharmacologic rehabilitation and specific therapeutic programs are emphasized. Students work with both hospitalized and ambulatory patients, and the primary emphasis is on enhancing diagnostic abilities in neurological disorders. Attending physicians conduct teaching rounds six days per week. Prerequisite: MED 601. [4 weeks] Bergen.

NEU 602 Advanced Neurology. Students further develop their clinical skills as they participate in the outpatient activities of the neurology department including seeing patients in the movement disorder, epilepsy, muscular dystrophy and multiple sclerosis clinics. Prerequisites: MED 601, NEU 601. FA WI SP SU [4 weeks] Bergen.

NEU 681 Neurological Research. Students participate in ongoing research projects within the department. Current areas of investigation include neuropharmacology, movement disorders, cerebrovascular disease, sleep disorders, epilepsy, neuromuscular disorders, multiple sclerosis and dementia. Prerequisite: NEU 601. FA WI SP SU [v] Bergen.

NURSING

NSG 301 Foundations of Nursing. Introductory course for the matriculating student. Emphasis is on professional concepts, health and wellness behavior. This provides the student with the groundwork on which professional nursing is built. (4-0-4)

NSG 311 Nursing Application I. Application and integration of the concepts of NSG 301 through lecture, seminar, psychomotor skills lab and clinical practicum. Corequisite: NSG 301. (8 credits--4 credits letter graded, 4 credits P/N)

NSG 312 Nursing Application II. Application and integration of the principles of the biological sciences through lecture, seminar, psychomotor skills lab and clinical practicum. Corequisite: BIO 301. (8 credits--4 credits letter graded, 4 credits P/N)

NSG 313 Nursing Application III. Continuation of NSG 312. Corequisite: BIO 302. (8 credits--4 credits letter graded, 4 credits P/N)

NSG 323 Heritage of Nursing. Overview of the historical influences that affect contemporary nursing practice. Contributions of major nursing leaders will be addressed. (2-0-2)

NSG 324 Parenting. An overview of current thinking and theories surrounding the complexities of parenting. Nursing interventions to support parent-child relationships will be explored. (2-0-2)

NSG 325 Women's Health Care: The Provider's Role. The unique health care needs of women throughout their life cycle are addressed. Emphasis will be on health maintenance. (4-0-3)

NSG 331 Biochemical and Physiological Aspects of Nutrition. An exploration of nutritional requirements throughout the life cycle and the biochemical and physiological aspects of nutrition. A minicourse sequence. (1)

NSG 332 Nutritional Management in Disease. Nutrient requirements and modifications in disease, including drug and diet interrelationships and nutritional support techniques. A second minicourse following NSG 331, taken during the same quarter. Prerequisite: NSG 331. (1)

NSG 351 Selected Topics in Rehabilitation Nursing. Selected rehabilitation concepts are applied to adult clients with progressive or permanent illness or disability, in institutional and community settings. Prerequisites: NSG 301, 311. (2)

NSG 352 Selected Topics in Rehabilitation Nursing: Clinical. Application of rehabilitation concepts from NSG 351 within the nursing process; formulation and implementation of nursing care plans for adult clients. Corequisite: NSG 351 (2)

NSG 355 Post-Anesthesia Care. This course is designed to expose the undergraduate practitioner to post anesthetic care. Under the guidance of the clinical preceptor, the student will be involved in providing direct patient care to the patient in the immediate post-operative period. Students will gain the ability to perform post-operative/post-anesthetic assessments, to implement the PAR care plan, in light of knowledge gained in areas of anesthetic agents, post-operative priorities, airway management, and PAR theory and concepts. (0-6-2)

NSG 382 Introduction to Nursing Research. An introduction to the basic concepts, techniques, and methods of the research process and evaluation of contemporary nursing research. (3-0-2)

NSG 390 Selected Topics in Nursing. A course for the registered nurse student. The course and the clinical component are prerequisite for the clinical AP.

Prerequisites: NSG 301 and 311 by course work or AP examination. (3-0-3)

NSG 401 Patient Care Management. Content focus is on leadership and management concepts appropriate for the first-level manager. Prerequisite: BHV 403. (3-0-3)

NSG 411 Nursing Application IV. Selected behavioral concepts are developed as they relate to nursing practice. Corequisite: BHV 402. (9 credits--4 credits letter graded, 5 credits P/N)

NSG 412 Nursing Application V. Continuation of NSG 411. Corequisite: BHV 403. (9 credits--4 credits letter graded, 5 credits P/N)

NSG 413 Nursing Application VI. Application of leadership and management principles to the care of patients. Emphasis is placed on the organizational context of health care delivery systems. Corequisite: NSG 401. (11 credits--3 credits letter graded, 8 credits P/N)

NSG 423 Intraoperative Nursing. The focus is on the nurse's role during the intraoperative phase of the patient's treatment. Instruction and clinical practice in nursing responsibilities will be included. (4)

NSG 424 Basic Cardiac Arrhythmias. Self-paced mastery learning mode used to help students recognize and describe common disorders of cardiac rhythm, hemodynamic mechanisms and nursing implications. Prerequisite: BIO 302. (2-0-2)

NSG 425 Cardiovascular Nursing. An in-depth study of scientific concepts relating to cardiovascular nursing practice. Prerequisite: BIO 302. (2-0-2)

NSG 426 Oncology Nursing. The theoretical components of oncology nursing presented to enhance the student's understanding of cancer as an aberrant cellular disease, manifested as a chronic illness. (3-0-3)

NSG 427 Nursing Implications of Diagnostic Procedures. Patient problems, needs, preparation and appropriate nursing interventions are discussed in relation to major diagnostic tests for each body system. (2-0-2)

NSG 433 The Nursing Process in Health Education. Students will learn the components of the teaching-learning process and apply these to clients in a clinical experience. (2-1-3)

NSG 435 Pediatric Chronic Illness: Impact on the Child and Family. An overview of topics related to chronic illness and its impact on the development of the child and family which provides a theoretical basis for their nursing care. Topics include issues and impact or chronicity, impairments including oncology, respiratory cardiac sensorimotor, nursing process, wellness/illness, interpersonal and group relationships, research, professionalism, and life cycle. Prerequisite: BIO 302 (2-0-2)

NSG 437 Concepts Central to Surgical Nursing. An in-depth study of concepts related to surgical nursing. Previous nursing concepts are reviewed and new theories and concepts are introduced. Prerequisite: NSG 301. (2-0-2)

NSG 438 Introduction to Nursing Care of Ambulatory Surgery Patients and Family. An introduction to ambulatory surgery nursing. A didactic/clinical course integrating bioscience and behavioral science content in caring for ambulatory surgery patients and families. Prerequisite: BIO 302 (2-6-4)

NSG 441 Independent Clinical Study. Intensive independent study in a clinical area of nursing. (v)

NSG 449 Independent Study. Student contracts with nursing faculty for independent academic study in an area of nursing. (v)

NSG 501 The Use of Concepts, Theories and Models in Nursing Practice. Emphasis of this seminar course is on the use of models in nursing, their theoretical base and the operation of models in nursing practice. FA SP (2-0-2)

NSG 503 Physical Assessment. This course presents methods for obtaining and recording a complete data base of the patient's history; use of problem-oriented records; physical, emotional and developmental assessment and the use and interpretation of diagnostic instruments and procedures. FA WI SU (2-5-4)

NSG 523 Cardiac Rehabilitation. An overview of topics related to cardiac rehabilitation nursing. Emphasis is placed upon critical analysis of research in content areas. SU (2-0-2)

NSG 524 Parenting. Same as NSG 324 except that graduate students have an additional seminar and submit an in-depth research paper. (3-0-3)

NSG 525 Advanced Concepts in Cardiovascular Nursing. Recent advances in cardiovascular nursing and cardiology are presented as they apply to patients in an acute care setting. SP (3-0-3)

NSG 527 Current Topics in Respiratory Management. A lecture and seminar format for the presentation and discussion of current concepts in respiratory management. SU (2-0-2)

NSG 528 Nephrology Nursing. An in-depth study of renal anatomy, physiology and pathophysiology as they relate to nursing care. Current research findings are emphasized in analyzing the various forms of treatment for renal diseases. SP (2-0-2)

NSG 532 Perspectives in Trauma Nursing. The etiologies, pathophysiologies, clinical and psycho-social manifestations, and treatment(s) for a variety of traumatic events as experienced by both adults and children is presented. Professional, community, and

research implications are discussed. A basic research course is recommended but not required. (2-0-2)

NSG 533 Critical Care Nursing. The student will analyze nursing practice issues that affect the delivery of patient/family care in the critical care setting. FA (3-0-3)

NSG 534 Perspectives on Current Issues in Nursing. Through small group discussions and assignments, students will study selected current issues and their relationships to nursing. FA WI (2-0-2)

NSG 535 Neuroscience Nursing. Nervous system physiology and pathophysiology are presented using a functional assessment framework. Students will explore nervous system function and dysfunction from the perspective of their clinical specialty and a nursing functional assessment. SP (2-0-2)

NSG 536 Issues and Concepts in Home Health Care. Exploration of all facets of the organizational structures of home health care with emphasis on political, social and economic trends. Opportunities to evaluate changes in the health care industry and their impact on home health care will be provided. (3-0-3)

NSG 541 Nursing Consultation. Combined lecture-seminar course with emphasis on the theory of consultation. WI SU (2-0-2)

NSG 543 The Clinical Nurse Specialist. The present role of the clinical nurse specialist in varied settings is explored. FA SP SU (2-0-2)

NSG 551 Introduction to Radiation Therapy. The nursing role with the radiotherapy patient will be emphasized. Radiobiology, radiation safety, and the rationale and methods for radiation treatment will be explored. WI (2-0-2)

NSG 552 Perspectives on Rehabilitation-Chronic Illness and Disability. The focus of the course is on the impact that chronic illness and disability have on the individual, the family and society. Concepts and issues related to working with and caring for persons in the home and hospital setting will be addressed. A framework for assessing the daily and persistent social and psychological problems faced by persons with chronic illness and disability and by their families will be presented. FA (3-0-3)

NSG 553 Orthopaedic Nursing. An in-depth study of musculoskeletal growth, development and pathophysiology as they relate to nursing care. Current treatment modalities and multidisciplinary management are emphasized. Prerequisite: None for graduate nursing; undergraduate nursing BHV 403, NSG 411 (2-0-2)

NSG 554 Transplant Nursing. Current transplant practices (immunology, rejection, infection) and issues (ethical, political) will be explored. The nursing role with various organ transplant patients will be

emphasized. Prerequisite: Senior nursing students with permission of instructor. (2-0-2)

NSG 588 Directed Research. Independent research experience to test theory and/or gather data under the guidance of a faculty member. (v)

NSG 591 Independent Clinical Study. Intensive independent study in a clinical area of nursing. Prerequisite: HCE 583. (v)

NSG 598 Master's Thesis. Students who elect to write a master's thesis contract with their major advisor and the associate dean. Minimum enrollment: three quarter hours each quarter. (v)

NSG 599 Independent Study. Student contracts with nursing faculty for independent academic study in a selected area of nursing. (v)

NSG 601 Theory Development. Exploration of theory construction through the study of the philosophy of science. Course extends over two quarters. FA WI (2-0-4)

NSG 605 Theory Development in Psychiatric Nursing. The development of theories for psychiatric nursing is discussed in the light of modern philosophy of science. (2-0-2)

NSG 641 Developing Leadership Style. Identification and analysis of the current status of nursing. Development of leadership styles for the advancement of the nursing profession is stressed. SU (2-0-2)

NSG 671 Research Design and Methods I. The first in a two-course research sequence. Focus is on analysis of selected research studies. Prerequisites: HCE 583, HCE 584, PVM 541 or equivalent; NSG 601 is recommended. SP (3-0-3)

NSG 672 Research Design and Methods II. An in-depth analysis of measurement issues. Emphasis on instrument development, evaluation and testing. Prerequisite: NSG 671. SU (3-0-3)

NSG 675 Qualitative Research Methods. Seminar focuses on selected issues in the design, conduct, and reporting of qualitative research. Experience with data management and analysis is included. Prerequisite: NSG 672 (2-0-2)

NSG 688 Directed Research. Independent research experience to test theory and/or gather data under the guidance of a faculty member. (v)

NSG 689 Research Grantsmanship. This course provides the knowledge base and skills essential to the process of development and submission of a research grant application. SU (1-0-1)

NSG 691 Directed Clinical Nursing. At least 20 quarter hours of individually designed courses of independent study are planned conjointly by the doctoral student and the academic advisor. (v)

NSG 696 Clinical Seminar: Application of Doctoral Education in Nursing in Clinical Practice. Students and faculty critically analyze the components of clinical practice in nursing at the doctoral level. SU (2-0-2)

NSG 699 Dissertation Research. Individual guidance of independent research. Doctoral candidate must be enrolled for at least three quarter hours each quarter until dissertation has been defended. (v)

NURSING--ANESTHESIA

NAN 511 Anesthesia Nursing Concepts Seminar and Practicum I. Principles and skills basic to the practice of anesthesia are discussed. Clinical practice focuses on patient assessment. Prerequisite: NAN 521. WI (v-v-4)

NAN 512 Anesthesia Nursing Concepts Seminar and Practicum II. Anatomy, physiology and pathophysiology in relation to anesthesia are investigated. Supervised clinical practice of anesthesia in relation to total patient care is provided. Prerequisite: NAN 511. SP (v-v-6)

NAN 513 Anesthesia Nursing Seminar. Discussion of the clinical specialty areas with integration of concepts from principles of anesthesia into specialty areas of pediatrics and obstetrics. Prerequisite: NAN 512. Corequisite: NAN 595. SU (3-0-3)

NAN 521 Chemistry and Physics in Anesthesia I. An introduction to chemistry and physics in anesthesia. Major emphasis is on the principles of organic chemistry. FA (3-0-3)

NAN 522 Chemistry and Physics in Anesthesia II. Continuation of NAN 521. This course focuses on physics in relation to anesthesia practice. WI (3-0-3)

NAN 531 Basic Pharmacology in Anesthesia. An introduction to pharmacokinetics and its application to clinical anesthesia including anesthetic agents and drugs used in the operating room. (2-0-2)

NAN 541 Pharmacology in Anesthesia. Pharmacology in relation to anesthesia including pharmacology of adjunct drugs, clinical application and drug interactions. Prerequisite: NAN 531. (6-0-6)

NAN 595 Practicum in Anesthesia. Experience in clinical anesthesia with supervision by a CRNA and/or anesthesiologist. Corequisite: NAN 513. SU (0-21-7)

NAN 600 Residency in Anesthesia Nursing. A 52-week, 4-quarter residency following completion of the anesthesia nursing curriculum which provides the opportunity for the student to become clinically proficient in the practice of anesthesia. Journal clubs and conferences will be included. No academic credits given.

NURSING--COMMUNITY, HOME HEALTH CARE

CHH 511 Home Health Care Seminar and Practicum I. Regulatory, legislative and competitive forces impacting home health care delivery will be discussed. In addition, students will assess the home health care needs of selected patient and care-giver populations. Prerequisite: NSG 503. (4-6-6)

CHH 512 Home Health Care Seminar and Practicum II. This course focuses on advanced clinical nursing practice in home health care. Concepts and issues related to caring for persons of all ages in the home will be discussed. Prerequisites: CHH 511; CNP 526. (4-6-6)

CHH 513 Home Health Care Seminar and Practicum III. Building on previous course content, students will apply knowledge of home health care delivery and of patient problems to the management of others. Prerequisite: CHH 512. (4-6-6)

NURSING--COMMUNITY NURSE PRACTITIONER

CNP 511 Community Nurse Practitioner Concepts: Seminar and Practicum I. Using a developmental approach, health maintenance and management of common problems related to reproduction and child health care are stressed. Prerequisites: NSG 501, 503; CNP 561; 6 quarter hours of biological science. (7)

CNP 512 Community Nurse Practitioner Concepts: Seminar and Practicum II. Students will develop cognitive and clinical skills to provide primary health care to adults in ambulatory care settings. Prerequisite: CNP 511. (7)

CNP 513 Community Nurse Practitioner Concepts: Seminar and Practicum III. Continuation of CNP 512. Prerequisite: CNP 512. (6)

CNP 526 Community Health Assessment: Basic Concepts and Methods. The first of three sequential courses introduces approaches to community assessment and health management of groups. (2-0-2)

CNP 527 Community Assessment Planning. The second assessment course focuses on planning as a method of decision making and includes selected epidemiological approaches. (2-0-2)

CNP 528 Community Health Assessment: Implementation. Through synthesis of course work in the prior two assessment courses, students will formulate both a community diagnosis and treatment plan. (3-0-3)

CNP 544 Epidemiology. Principles and methods of epidemiologic investigation of infectious and chronic diseases with implications for community health nursing practice. SP (3-0-3)

CNP 561 The Role of the Community Nurse Practitioner. An examination of clinical models and issues that influence the scope of practice as a community nurse practitioner. Role dimensions and goals will be emphasized. (2-0-2)

CNP 600 Residency in Community Nursing. A one-quarter residency following all required courses. The student functions in a setting which allows for the integration of clinical assessment, management, nursing, and community organization. (0-1-1)

NURSING--GERONTOLOGICAL

NGR 511 Gerontological Nursing Concepts Seminar and Practicum I. Concepts, theories, clinical approaches and research findings related to the active older adult in the community are discussed and applied in clinical practice. Prerequisite: NSG 501. WI (v-v-4)

NGR 512 Gerontological Nursing Concepts Seminar and Practicum II. Focus is on common health problems of older persons. Emphasis is placed on the nursing components of prevention, health maintenance and restorative measures. SP (v-v-7)

NGR 513 Gerontological Nursing Concepts Seminar and Practicum III. Continuation of NGR 512. Includes completion of clinical project. SU (v-v-7)

NGR 514 Gerontological Nurse Practitioner Concepts. A seminar focusing on organizational, economic, legal and behavioral factors influencing implementation of the gerontological nurse practitioner role. Prerequisite: NGR 513. (3-0-2)

NGR 515 Gerontological Nurse Practitioner Practicum. Directed practice in a variety of settings is provided. Prerequisite: NGR 513. (v-v-1)

NGR 522 Physiological Aspects of Drugs in the Elderly. Physiological aspects of drug absorption, distribution, metabolism and excretion, with special reference to the aging adult. Factors involved in assessment of drug-related health problems are identified. WI (2-0-2)

NGR 523 Physiological Aspects of Nutrition in the Elderly. Physiological aspects of food intake, absorption, distribution, metabolism, and excretion in the aging adult. Students learn of changing nutritional requirements, evaluate nutrient intake of the elderly and discuss nutrition related diseases of old age. (2-0-2)

NGR 589 Geriatric/Gerontological Internship. The student will gain maximum experience in providing expert care for aging adults and will have line responsibility and accountability for an assigned case load. (12)

NGR 591 Independent Clinical Study. Intensive independent study in geriatric nursing. (v)

NURSING-- MEDICAL/SURGICAL

NMS 511 Medical/Surgical Nursing Concepts Seminar and Practicum I. Using a theoretical and research base, the advanced clinical nursing practice role is explored, discussed and enacted in a chosen area of adult health. Role development emphasizes expert nursing care, research application, and professional and organizational leadership. Prerequisites: Completion of at least 13 qtr. hrs. of program required courses, and Corequisites: All Bioscience courses, HCE 584, NSG 503. WI (v-v-5)

NMS 512 Medical/Surgical Nursing Concepts Seminar and Practicum II. Continuation of NMS 511. Prerequisites: 26 qtr. hrs. of program requirements, NMS 511. SP (v-v-6)

NMS 513 Medical/Surgical Nursing Concepts Seminar and Practicum III. Continuation of NMS 512. Prerequisites: 40 qtr. hrs. of program requirements, NMS 512. SU (v-v-7)

NURSING--MIDWIFERY

NMW 561 Contemporary Issues in Nurse Midwifery. An exploration of issues, including their historical development, that impact the practice of nurse midwifery and the professional role of nurse midwives as nurses and as members of a health care team. SU (2-0-2)

NMW 601 Health Care of Women and Neonatal Assessment. Introduction to the theoretical framework for and basic skills used in the practice of nurse midwifery. Prerequisites: NSG 501, 503; HCE 583, 584. Corequisite: BIO 530. FA (3-6-5)

NMW 611 Low-Risk Management. The focus of this course is on preventive health care for low-risk women and newborns. Clinical experiences and course content include counseling and scientifically based management regimens. Prerequisites: NMW 601. Corequisite: BIO 531. WI (3-15-8)

NMW 612 Moderate-Risk Management. The utilization of the nurse-midwifery process in the management of maternal and neonatal problems which place the family at moderate risk will be discussed, e.g., issues surrounding fetal/neonatal/maternal well-being and commonly occurring complications in the antepartal, intrapartal, and postpartal phases of the reproductive cycle. Prerequisite: NMW 611. Corequisite: BIO 532. SP (3-15-8)

NMW 613 Advanced-Risk Management. The course focuses on recognition of real or potential complications surrounding the reproductive couple and neonate with emphasis on anticipatory guidance and management. Prerequisite: NMW 612. SU (3-18-9)

NURSING--ONCOLOGY

NOC 511 Oncology Nursing Concepts Seminar and Practicum I. Seminar focuses on oncology nursing problems with discussion of relevant theories, clinical approaches and research findings. The practicum includes study and observation of the role of the clinical specialist in oncology nursing. Prerequisites: NSG 501, HCE 583, PPH 522. WI (v-v-4)

NOC 512 Oncology Nursing Concepts Seminar and Practicum II. Continuation of NOC 511. SP (v-v-7)

NOC 513 Oncology Nursing Concepts Seminar and Practicum III. Continuation of NOC 512. Includes completion of a clinical project. SU (v-v-7)

NURSING--PARENT/CHILD HEALTH

NPC 421 Perinatal Nursing. An in-depth exploration of concepts and issues in perinatal nursing practice in normal and high-risk situations. (3-0-3)

NPC 423 Introduction to High-Risk Neonatal Nursing. Principles of neonatal physiology and pathophysiology provide a theoretical knowledge base to assess, plan, implement and evaluate a care plan for the high-risk neonate and his/her family. Behavioral issues will be discussed. (2-0-2)

NPC 431 Maternal-Child Health Practices. A survey course examining maternal-child health practices, primarily in the United States. Four approaches will be reviewed: anthropological, legislative, sociological and sociobiological. The objective is to broaden the students' perspective in evaluating health behaviors of women and children. (2-0-2)

NPC 503 Parent/Child Assessment. Development and use of behavioral rating scales that examine parent/child interaction. The student may become a reliable rater of the following standardized instruments: NCASA, NCAFS, NCATS and HOME. (3-0-3)

NPC 511 Parent/Child Health Nursing Concepts Seminar and Practicum I. Assessment and planning interventions for the childbearing experiences and for the child from birth through adolescence. Critical analysis of the parent/child practitioner and evaluation of early parent/child interaction research. Prerequisites: NSG 501, 503; HCE 583. Corequisite: HCE 584. WI (v-v-4)

NPC 512 Parent/Child Health Nursing Concepts Seminar and Practicum II. Developmental issues of child rearing. Emphasis on management of common pediatric and obstetric problems and teaching of clients and professionals. SP (v-v-7)

NPC 513 Parent/Child Health Nursing Concepts Seminar and Practicum III. Focuses on high risk in obstetric and pediatric care. Students present family case

analyses and participate in the illness fair and a management workshop. SU (v-v-7)

NPC 541 Parent and Child Health Education. The role of the clinical specialist in parent and child education in all phases of health and illness. Family and child development, teaching-learning theories and parent/child health education resources will be explored. Course participants will critique current research in the area and will develop a health education program for a selected population. (2-0-2)

NPC 542 Ethical Issues Surrounding Parents' and Children's Health and Welfare. This course uses the case study to present ethical issues of parents' and children's welfare. The student will explain the decision-making process involved in selected clinical situations. (2-0-2)

NPC 543 Parent/Child Law and Health Policy. This course examines statutory law and administrative regulations that pertain to the health of parents and children. The impact of federal legislation will be analyzed and a method of altering the status quo, child advocacy, will be explored. (3-0-3)

NPC 551 Advanced Neonatal Concepts I: Assessment and Stabilization of the Newborn. Discussion and integration of concepts from well-infant screening measures, fluid and electrolyte homeostasis and changes that occur in the cardiopulmonary system after birth. Prerequisite: BIO 531 or corequisite. Corequisite: NPC 511. (2-0-2)

NPC 552 Advanced Neonatal Concepts II: Clinical Therapeutics in the Neonate. Focuses on alterations in perfusion, acid-base balance, oxygenation and asphyxia. Assessment and therapeutic management of congenital heart disease, renal function and gastrointestinal disorders are discussed. Prerequisites: NPC 551; BIO 532 or corequisite. Corequisite NPC 512. (2-0-2)

NPC 553 Advanced Neonatal Concepts III: Fostering Family Adaptation--Discharge of High-Risk Infants. Focuses on the outcome of infants from NICUs. Chronic disabling conditions are discussed. Interventions that foster family adaptation and promote home transition are stressed. Prerequisites: BIO 531, 532. Corequisite: NPC 513. (2-0-2)

NPC 561 Advanced Pediatric and Adolescent Concepts I. This course introduces the assessment, interpretation of data and management of the well child. Common acute and chronic problems and ambulatory emergencies in infant through toddler age groups will be discussed also. Prerequisite: BIO 541. (2-0-2)

NPC 562 Advanced Pediatric and Adolescent Concepts II. This course presents the assessment, interpretation of data and management of health maintenance, common acute and chronic problems, ambulatory emergencies and lifestyle issues related to

school and adolescent age groups. Corequisite: NPC 512. (2-0-2)

NPC 563 Advanced Pediatric and Adolescent Concepts III. This course examines the child or adolescent who has special needs. Included are health, developmental, socioeconomic and cultural problems and issues as well as self-care and home care management. Corequisite: NPC 513. (2-0-2)

NPC 592 Advanced Neonatal Nursing Residency. This internship follows the neonatal nurse practitioner course work and prepares students for advanced practice of neonatal nursing. (1)

NPC 593 Pediatric Nurse Practitioner Residency. Clinical practice of 400 hours of ambulatory pediatric or adolescent primary care. Two, one-day seminars at Rush are required during the quarter. (1)

NURSING--PSYCHIATRIC

NPS 511 Psychiatric/Mental Health Nursing Concepts Seminar and Practicum I. Modules I and II (open to non majors) consider psychosocial interviewing and emergency treatment skills. Module III focuses on individual psychotherapy. Prerequisites: ANA 462; BHV 501, 561; NSG 501. WI (2-15-7)

NPS 512 Psychiatric/Mental Health Nursing Seminar and Practicum II. Modules (open to nonmajors) focus on psychotherapy with families and groups. Prerequisite: NPS 511. SP (1-18-7)

NPS 513 Psychiatric/Mental Health Nursing Seminar and Practicum III. Emphasis is on therapeutic interventions for acute and chronic manifestations of neuropsychopathology. Prerequisite: NPS 512. SU (1-18-7)

NPS 521 Comparative Theoretical Methods in Psychiatric Nursing. Using the knowledge base developed in NSG 501, detailed study of Peplau's interpersonal model, Travelbee's process model and one broad-based model will be made. Prerequisite: NSG 501. (1-3-2)

NPS 561 Integrating Psychobiological Theories of Affective Disorders into Psychiatric Nursing Practice. This course offers a framework for developing a holistic approach in providing nursing care to patients with affective disorders. Principles of neuroanatomy and physiology, psychopharmacology and assessment of behavioral response to treatment are interwoven with nursing interventions and treatment protocols and issues. (3-0-3)

CLINICAL NUTRITION

NTR 321 Introduction to Normal and Clinical Nutrition. Designed for undergraduate nursing students, topics cover basic principles of nutrition: nutrition

substances and processes; the basic four food groups; recommended dietary allowances and nutritional requirements throughout the life cycle. The following nursing issues will be discussed: evaluation of nutritional status; drug and diet interrelationships; nutritional management of selected diseases and specialized nutrition support techniques. (1-2)

NTR 503 Dietetics I. An examination of management strategies and techniques used in delivery of food and nutrition services in a health care setting. Track I clinical nutrition students only. FA (3-0-3)

NTR 504 Dietetics II. Application of management tools and current research findings to operational problem-solving situations. Focus on managing change. Track I clinical nutrition students only. WI (3-0-3)

NTR 505, 506 Dietetics III, IV. Emphasis is placed on the technical, conceptual and humanistic skills which provide the foundation for clinical dietetics practice. Limited to clinical nutrition students in Track I. SP SU (3-0-3) (3-0-3)

NTR 510 Current Professional Issues. The student will participate in discussions intended to examine professional issues in the field of dietetics that are of current interest and concern. Limited to clinical nutrition students. FA (3-0-3)

NTR 511, 512 Practicum I, II. The student will participate in experiences designed to develop technical, human and conceptual skills essential for management of food service systems. Limited to clinical nutrition students in Track I. FA WI (0-24-3) (0-24-3)

NTR 513, 514, 515 Practicum III, IV, V. The student will participate in experiences designed to develop the technical, conceptual and humanistic skills necessary to function in the practice of clinical dietetics. Limited to clinical nutrition students in Track I. SP SU FA (0-20-3) (0-20-3) (0-v-2)

NTR 521 Human Metabolism I. Lectures describe the synthesis and degradation of nucleic acids and proteins. Limited to clinical nutrition students or permission of instructor. FA (4-0-4)

NTR 522 Human Metabolism II. Lectures describe anabolic and catabolic pathways of carbohydrates, lipids and amino acids. Limited to clinical nutrition students or permission of instructor. Prerequisite: NTR 521. WI (4-0-4)

NTR 524 Advanced Mineral and Vitamin Metabolism. Lectures and readings describe current consensus on the functional aspects of these micronutrients in man. Permission of instructor required. Prerequisite: NTR 522. (3-0-3)

NTR 527 Advanced Protein Metabolism. Lectures and readings review mammalian protein metabolism in liver, muscle, intestine and brain and emphasize metabolic

changes in response to various diets, infection and certain disease states. Permission of instructor required. Prerequisite: NTR 522. (3-0-3)

NTR 528 Advanced Carbohydrate and Lipid Metabolism. Lectures emphasize the role of diet composition and starvation in the regulation of carbohydrate and lipid metabolism. Permission of instructor required. Prerequisite: NTR 522. (4-0-4)

NTR 534 Nutrition in Clinical Care. Current rationale and techniques for assessing patient requirements and monitoring nutritional therapy in nonvolitionally fed patients. The latter part of the course reviews formulae used in the metabolic support of patients with liver, renal or lung disease. Special attention is given to metabolic complications associated with intravenous feeding. FA (3-0-3)

NTR 535 Nutrition in Sports and Fitness. A study of nutritional aspects of exercise physiology with the practical issues of providing nutrition services in various exercise settings. Nutrition considerations unique to active populations, such as elite and recreational athletes as well as individuals on medically prescribed exercise for disease management, will be examined. FA (3-0-3)

NTR 541, 542 Interrelationships of Nutrition and Disease I, II. The student will describe current theories of pathophysiology, diagnosis and treatment for nutritionally related disorders. Limited to clinical nutrition students. Prerequisite: NTR 522. SP SU (4-0-4) (4-0-4)

NTR 543 Physiological Basis of Exercise and Nutrition. An examination of the physiological and metabolic adaptations to exercise and physical conditioning. Special attention is given to the nutritional needs of the human body in response to specific types of exercise. Prerequisite: biochemistry, advanced nutrition, physiology, or permission of instructor. SP (4-0-4)

NTR 544 Nutrition in Sports. Analysis of literature pertaining to nutrition, exercise, and the effect on various population subgroups. The practical aspects of nutrition management for elite, scholastic, collegiate, and recreational athletes will be examined. Prerequisite: NTR 543 or permission of instructor. SU (2-0-2)

NTR 545 Nutrition in Fitness and Wellness. An examination of the role of nutrition and exercise in the prevention of chronic diseases. The development, promotion, implementation, and evaluation of fitness/wellness programs for a variety of settings and disease conditions will be explored. Prerequisite: NTR 543 or permission of instructor. FA (3-0-3)

NTR 551 Nutrition in Human Development I. Survey of critical nutrition issues and concerns during the prenatal, infant, childhood and adolescent stages of life. Limited to clinical nutrition students or permission of instructor. FA (3-0-3)

NTR 552 Nutrition in Human Development II. Survey of critical nutrition issues and concerns during adult stages of the life cycle. Limited to clinical nutrition students or permission of the instructor. Prerequisite: NTR 551. WI (3-0-3)

NTR 572 Nutrition Communications. Theories and strategies of nutrition education, counseling, interviewing, and preparation of instructional materials will be addressed. A variety of communication techniques will be applied to specific practice settings and evaluated for effectiveness. Video-taped presentations and interviews will be used to enhance oral skills. SP (3-0-3)

NTR 582 Introduction to Nutrition Research. An orientation to research designs and methodologies; collection and analysis of data for specified objectives and preparation of a proposal for NTR 585 or 586. SP (4-0-4)

NTR 585 Applied Research Problem. Under faculty supervision, the student will conduct a research project and prepare a written research report which includes a statement of the problem, review of the literature, research methodologies, findings, discussion and conclusions. Project approval by both the faculty preceptor and the course director is required six weeks prior to enrollment. For Track II students only. May be repeated for a total of six credits. Prerequisite: NTR 582. (1-6)

NTR 586, 587. Applied Research Problem I, II. Under faculty supervision, the student will conduct a research project and prepare a written research report that includes a statement of the problem; review of the literature; research methodologies; findings; discussion and conclusions. Project approval by both the faculty preceptor and course director is required six weeks prior to enrollment. Limited to Track I students. Prerequisite: NTR 582. SU FA (3) (3)

NTR 590 Special Topics. Special topics in nutrition will be offered in response to specific needs identified by the faculty and/or a group of students. (v-0-v)

NTR 592 Individualized Clinical Practice. For students who wish advanced experience in one area of clinical nutrition practice. Limited to clinical nutrition students in Track I. (0-v-v)

NTR 599 Independent Readings. The student completes a literature research and written paper on a topic related to nutrition that will complement his/her learning goals. Arrangements for study must be made with the preceptor prior to registration. (0-0-v)

OBSTETRICS AND GYNECOLOGY

OBG 601 Core Clerkship in Obstetrics and Gynecology. A study of the female reproductive tract with emphasis on routine gynecologic health care maintenance and patient education. Identification and

management of high-risk pregnancy, infertility and other endocrinopathies, gynecologic oncology, family planning, psychosomatic disorders and normal psychological changes in obstetrics and gynecology as well as gynecologic surgery are some of the areas covered in detail. Prerequisite: CCS 502. FA WI SP SU [8 weeks]

OBG 621 Normal Obstetrics. Emphasis is on the ideal support of the normal pregnant patient. Specific areas covered are preparation for childbirth (i.e., Lamaze, etc.), psychology of childbirth, alternative methods of childbirth, Leboyer method and patient-infant bonding. Prerequisite: OBG 601. FA WI SP SU [4 weeks] Merrick.

OBG 622 Sonography. Clinical use of ultrasound in obstetrics. FA WI SP SU (2 weeks) Giglia.

OBG 661 Gynecologic Oncology. The diagnosis, management and follow-up of female reproductive tract tumors. Students are introduced to the use of diagnostic procedures such as colposcopy, laparoscopy, and biopsies, as well as treatment with chemotherapy and cancer surgery. Prerequisite: OBG 601. FA WI SP SU [4 weeks] Yordan.

OBG 666 Ambulatory/Reproductive Health Care. Students are provided additional clinical experience in family planning practices. Students interview and examine ambulatory patients, prescribe methods of family planning, and conduct follow-up under supervision of the staff. Prerequisite: OBG 601. FA WI SP SU [4 weeks] Boatwright.

OBG 667 Reproductive Endocrinology and Infertility. Diagnostic evaluation and therapeutic management of couples with infertility problems and women with gynecologic endocrine disorders are studied. Students participate in routine diagnostic studies, scrub on surgical reconstructive procedures involving the female reproductive system, participate in the activities of the in vitro fertilization program and may obtain laboratory experience. Prerequisite: OBG 601. FA WI SP SU [4 weeks] Dmowski.

OBG 668 Perinatology. Emphasis is on the identification and management of high-risk pregnancy. Ultrasonography, amniocentesis, medical and surgical complications of pregnancy and operative obstetrics are some of the specific topics dealt with in detail. Students participate in antepartum management of hospitalized and ambulatory pregnant patients with high-risk conditions. Additional exposure to intrapartum problems can be arranged. Prerequisite: OBG 601. FA WI SP SU [4-8 weeks] Strassner.

OCCUPATIONAL THERAPY

OCC 450 Special Studies. Introduction to medical terminology and computer science utilizing PLATO, the computer-based education system. FA (0-v-1) Hughes, Staff.

OCC 461 Health and Development. The nature of health, illness and disability and their effect on the fulfillment of developmental roles and functions throughout the life span. FA (3-0-3) Opacich.

OCC 463 Principles of Movement. The biomechanics of movement and the application of neuromusculoskeletal function to the performance of daily living tasks and activities are emphasized. FA (2-2-3)

OCC 465 Group Dynamics. Didactic and experiential activities designed to familiarize the student with basic principles underlying group process and group behavior and clinical application of these principles in occupational therapy are studied. Prerequisites: OCC 501, PSY 501. WI (2-2-3) Weinstein.

OCC 495, 496 Fieldwork I, II. Supervised field experience applying theoretical concepts in occupational therapy with patients having psychosocial/physical dysfunctions. Prerequisite: all previous required course work. WI SP (v-v-1) (v-v-1) Hughes.

OCC 501 Activity Theory and Skills. The focus is on teaching, analysis and therapeutic application of activities. Analysis, history and skills in areas of play/leisure and self-care, homemaking and work and development of skills in performing selected activities are studied in depth. Theoretical constructs which provide the basis for occupational therapy practice are explored. FA (2-4-4) Silerzio, Staff.

OCC 502 Occupational Therapy History and Philosophy. An overview of the historical foundations of occupational therapy as they relate to the frames of reference and theoretical perspectives upon which the field is based. Prerequisites: OCC 461, 501. WI (3-0-3) Jones.

OCC 505 Pathophysiology in Occupational Therapy. Emphasis is on the reasons for breakdown of structure and function, the location of lesions, effects on the bodily systems and the implications of these conditions for the client's lifestyle. WI (3-0-3) Rosenblatt.

OCC 506 Medical Conditions Seminar. A presentation and discussion of selected medical, surgical, neurological and orthopedic conditions with emphasis on their etiology, treatment and prognosis. SP (2-0-2) Opacich.

OCC 510 Special Topics Seminar. Seminars address those nonclinical issues that are dictated by societal events and changes and are integral to the performance of occupational therapists' functions. SP (3-0-3) Silerzio, Weinstein.

OCC 511 Occupational Therapy Intervention I. Students learn theories and conceptual models for intervention in the disease processes of psychosocial

disorders which can be applied in medical, educational and community settings. Simulated and actual patient management issues relative to psychosocial disorders are presented and discussed. Includes preclinical experiences in psychiatric settings. Prerequisites: OCC 465, 502. SP (v-v-6) Rodriguez, Watson.

OCC 512 Occupational Therapy Intervention II. Theories and conceptual models of intervention are presented, based on neurodevelopmental principles of and approaches to occupational therapy evaluation and treatment of individuals with central nervous system disorders. Information is reviewed chronologically across the life span for both acute and chronic conditions. Includes preclinical experiences in selected settings. Prerequisite: OCC 511. FA (v-v-6) Rosenblatt.

OCC 513 Occupational Therapy Intervention III. Theories and conceptual models of intervention are presented, based on biomedical principles and approaches of occupational therapy evaluation and on the treatment of physically disabled individuals. Information is reviewed chronologically across the life span for both acute and chronic conditions. Includes preclinical experience in selected settings. Prerequisites: OCC 463, 502, 506, 541; NEU 501. SU (v-v-6) Rosenblatt.

OCC 514 Occupational Therapy Intervention IV. An exploration of specific issues, problems, and concerns revolving around patient care in community based centers for pediatric and geriatric populations. Includes advanced practicum in selected settings. Prerequisites: OCC 511, 513. SU (v-v-4) Rosenblatt.

OCC 521 Etiology of Occupation. A critical review of theories and practices of occupational therapy with projection of future models of practice. Includes examination of scientific knowledge, models of health care, sociological features of occupational therapy practice and the study of human occupation and its description in illness. Prerequisite: OCC 502. SU (4-0-4) Novak.

OCC 531 Principles and Methods of Education. An exploration of the use of behavioral objectives, taxonomical levels of learning and the application of classical and contemporary theories. A variety of media and techniques to enhance clinical and classroom teaching will be emphasized. SU (2-0-2) Hughes.

OCC 533 Principles and Methods of Supervision. Introduction to the supervisory process based on principles related to education, interpersonal processes, and management. Prerequisite: OCC 531. Corequisite: OCC 545. FA (2-0-2) Hughes.

OCC 541 Tests and Measurement in Occupational Therapy. Administration, scoring, interpretation, and reporting of selected tests and informal assessments useful in an occupational therapy evaluation of clients of varying ages and disability. Prerequisite: OCC 502. SP (4-0-4) Opacich.

OCC 545 Management Issues in Occupational Therapy. Exploration and involvement in administrative activities related to effective delivery of occupational therapy services; includes budgeting, personnel policies and long- and short-term program planning. Prerequisites: organizational behavior course, OCC 521. FA (2-0-2) Novak.

OCC 582 Application of Computer Technology in Treatment, Management, and Research. An introduction to the computer in which students will apply their computer knowledge to problems and management in clinical areas related to patient treatment, report writing, file/data management, and data analysis. Prerequisite: OCC 512. Corequisite: OCC 545, HCE 581. FA (3) J. Williams.

OCC 585 Research Proposal. Completion of a departmental proposal prior to the implementation of a research project. Prerequisite: OCC 581. SP SU (0-v-3) Hughes, Staff.

OCC 590 Advanced Topics Seminar. Seminars address clinical entities in nontraditional areas of practice and concern of occupational therapy. Prerequisite: OCC 496. SU (2-0-2) Hughes, Staff.

OCC 598 Thesis. Completion of a departmental project, based on the research proposal, for a master's degree thesis relevant to occupational therapy. Prerequisite: OCC 585. SP SU (0-v-3) Hughes, Staff.

OCC 599 Independent Study. Creative project designed by the student and supervised by faculty. (v-v-v)

PATHOLOGY

PTH 503 Pathology I. The general concepts of pathology are studied, with an introduction to degeneration, inflammation, immune response, neoplasia and metabolic and toxic pathological processes. Lectures and seminars are accompanied by laboratory work in the microscopic anatomy of pathological changes. Prerequisites: ANA 451, 472. FA [74 hours] Templeton.

PTH 502, 503 Pathology II, III. A basic systemized study of human diseases affecting the various organ systems will be presented in lectures, seminars and laboratory sessions. Concepts covered in PTH 501 will be stressed and correlated with the special pathology of organ systems and their functional and structural alterations. Clinical pathology will provide a basic understanding of the clinical laboratory. Prerequisite: PTH 504. WI SP [146 hours] Johnson.

PTH 601 Pathology Clerkship. The primary emphasis is on techniques and procedures used in autopsy pathology performed under the direction of a departmental faculty member. In addition, there is active participation in surgical pathology. A review of systemic pathology and

cytology is provided. Available as a four-week elective only by special arrangement. Prerequisite: MED 601. FA WI SP SU [8 weeks] Weinstein.

PATHOPHYSIOLOGY

PPH 522 Biology of Cancer. Topics covered are: epidemiology of cancer; cell growth and proliferation; carcinogenesis; immunity and cancer; radiation biology; chemotherapy; mechanisms of metastasis and tumor products. FA (4-0-4)

PEDIATRICS

PED 601 Core Clerkship in Pediatrics. The principles and practice of care from birth through adolescence are studied by direct patient contact. The primary objective is to provide an opportunity for students to become proficient in the clinical basis of pediatric diagnosis and therapy. Prerequisite: CCS 502. FA WI SP SU [8 weeks] Gottoff.

PED 602 Pediatric Ambulatory Care. There is heavy emphasis on the study of normal growth, development and behavior of the child and adolescent. All aspects of the provision of ambulatory care are studied. Prerequisite: PED 601. FA WI SP SU [4-8 weeks] Strokosch.

PED 603 Introduction to Newborn Medicine. An introduction to the care of newborn infants and mothers, with emphasis on the normal sequence of events in the birth-recovery period, adaptation of baby and mother during the postpartum period and care of the most common complications occurring at this age. Prerequisite: PED 601. FA WI SP SU [4-8 weeks] Meier.

PED 604 Adolescent and Young Adult Medicine. The student is provided with direct experience in the care of inpatients and outpatients. The student is provided experience with disease processes unique to adolescents or manifested differently in this age group as compared to other age groups. FA WI SP SU [4-8 weeks] Strokosch.

PED 605 Advanced Pediatrics. Advanced studies in pediatrics and related disciplines provide increased depth and degree of responsibility in patient care. The clerkship also serves as a preparatory training phase for postdoctoral residency experience. Prerequisite: PED 601. FA WI SP SU [4-8 weeks] Gottoff.

PED 611 Pediatric Cardiology. Both ambulatory and inpatient experience is obtained in caring for children with heart disease. Correlation of x-ray and electrocardiographic and cardiac catheterization data with physical findings is intensively studied. The student participates in intraoperative and postoperative surgical management. Prerequisite: PED 601 or MED 601. FA WI SP SU [4-8 weeks] Bucheleres.

PED 621 Pediatric Endocrinology. Students will participate in clinical care of hospitalized and office patients. Patients with a variety of disorders will be seen, including short stature, precocious or delayed puberty, hypo- or hyperthyroidism, adrenal hyperplasia, diabetes, hypoglycemia and obesity. Prerequisite: PED 601. FA WI SP SU [4 weeks] Mueller.

PED 622 Emergency Pediatrics. At least 30-40 hours per week includes daily attendance in the pediatric emergency room and night call responsibility. The student will be required to maintain a log of patients seen and procedures performed, to attend teaching conferences given by a pediatrician and to attend the didactic lecture on a suitable topic at one of the emergency pediatric conferences. Prerequisite: PED 601. FA WI SP SU [4 weeks] Unfer.

PED 624 Pediatric Critical Care. Emergency medicine is the essence of this course. There is an emphasis on acquiring a wide knowledge of the latest remedies, resourcefulness and a good command of emergency procedures and equipment. Prerequisite: PED 601 and fourth year status FA WI SP SU [4-8 weeks] G. Goldman.

PED 626 Pediatric Nephrology. Emphasis will be on normal and abnormal renal function, electrolyte imbalances, proteinuria, hematuria, hypertension, urinary tract infection and developmental diseases of the kidney and urinary tract. Prerequisite: PED 601. FA WI SP SU [4-8 weeks] Moore.

PED 631 Pediatric Radiology. Students observe radiologic procedures and participate in analyses, reviews, and general radiology conferences. Analysis involves assessment of appropriateness of an examination, detection of pertinent findings, interpretation of findings and synthesis of interpretation and clinical presentation into reasonable diagnosis. Prerequisite: PED 601. FA WI SP SU [4-8 weeks] Gardner.

PED 641 Pediatric Allergy/Clinical Immunology. The clinical approach to the problems of allergy and immunology in children and adults is studied. Special studies of acute and chronic respiratory tract and dermatologic conditions are emphasized. Patients with circulating and cellular antibody disorders are investigated. The inpatient and outpatient facilities of the Medical Center are used. Prerequisite: PED 601. FA WI SP SU [12 weeks] Chudwin.

PED 642 Pediatric Hematology/Oncology. This course provides an introduction to the care of children with a variety of hematologic disorders, or malignancies of childhood. Students will attend consultations with radiologists, pathologists and surgeons involved in the diagnosis of malignant diseases. Daily ward rounds for inpatients are required as well as outpatient clinics which are held three half-days a week. Prerequisite: PED 601. FA WI SP SU [4-8 weeks] Kaizer.

PED 646 Pediatric Infectious Diseases. The focus is on clinical and laboratory evaluation of pediatric

infections. Correct use of laboratory facilities is stressed. Pathophysiology of infectious diseases, differential diagnosis and antibiotic use are discussed on daily ward rounds and weekly conferences. Prerequisite: PED 601. FA WI SP SU [4 weeks]

PED 651 Pediatric Neurology. An advanced clinical experience focusing on neurological problems in the pediatric population. Prerequisite: PED 601. FA WI SP SU [4 weeks] Heydemann, Boyer.

PED 671 Pediatric Pulmonary Medicine. This elective includes: a review of developmental and clinical pulmonary physiology, current diagnostic and therapeutic modalities, respiratory manifestations of diseases and other problems in children. Prerequisite: PED 601. FA WI SP SU [4 weeks] Gibson.

PHARMACOLOGY

PHR 303 Nursing Pharmacology I. Course covers concepts affecting absorption, distribution, biotransformation, elimination, dose-response relationships and drug receptors. Prerequisite: general physiology course. (2-0-2)

PHR 304 Nursing Pharmacology II. Continuation of PHR 303. Pharmacological agents, such as autacoids, cardiovascular, renal and endocrine, are discussed and applied to nursing practice. Prerequisite: PHR 303. SP (2-0-2)

PHR 501 Medical Pharmacology I. Introduction to the physiochemical factors governing drug receptor actions and the major areas of autonomic, neuropharmacology and psychopharmacology. Prerequisites: BCH 473, NEU 451, PHY 452. FA (4-1-4) [53 hours] Moon.

PHR 502 Medical Pharmacology II. Topics include anesthetic agents, analgesics, sedatives and hypnotics, cardiovascular and respiratory agents, diuretics, hypoglycemic agents, drugs acting on the blood and blood-forming organs and toxicology. Prerequisite: PHR 501. WI (4-1-4) [37 hours] Moon.

PHR 503 Medical Pharmacology III. The pharmacology of antibiotics and cancer chemotherapeutic agents. Prerequisite: PHR 502. SP (2-0-2) [20 hours] Moon.

PHR 521 Laboratory Instrumentation. The course covers the principles and applications of experimental equipment. Instrumentation will include: ultraviolet and visible spectrophotometry, spectrophotofluorometry, thin-layer chromatography, column chromatography, high pressure liquid chromatography, atomic absorption, liquid scintillation spectrometry, isotope use and handling, pH adjustment, sample weighing, melting point determination, hematocrit determination, centrifugation and glassware cleaning. SP (0-6-3) Parkhurst.

PHR 551 Pharmacokinetics. Basic principles of the dynamics of absorption, distribution and elimination under

normal conditions and of selected disease states are presented. Prerequisite: PHR 503. WI (3-0-3) Nora, Parkhurst.

PHR 591 Advanced Topics in Pharmacology. A series of faculty and student presentations and discussions addressing any advanced topic related to pharmacology. FA WI SP (2-0-2) Prancan.

PHR 598 Research in Pharmacology. By special arrangement. (v) Prancan.

PHR 599 Independent Study. (v)

PHR 611 Neuropharmacology I. A seminar course presenting both preclinical and clinical aspects of drugs used in the treatment of neurologic and psychiatric disorders. Prerequisite: PHR 503. FA (3-0-3) Klawans.

PHR 612 Neuropharmacology II. Continuation of PHR 611. WI (3-0-3) Klawans.

PHR 613 Neuropharmacology III. Continuation of PHR 612. SP (3-0-3) Klawans.

PHR 622 Experimental Models in Pharmacology. A laboratory course concerned with the techniques involved in preparing experimental animal and tissue models for research. SP (0-8-4) Boyd, Prancan.

PHR 631 Clinical Pharmacology and Therapeutics. A study of the integration of clinical work with therapeutic aspects of pharmacology including discussion of the pharmacology, clinical pharmacology, therapeutics and clinical applications for major drug groups. Prerequisite: PHR 503. (4-0-4) MacLeod.

PHR 691 Pharmacology Seminar. FA WI SP (1-0-1) Nora.

PHR 699 Dissertation Research.(v)

PHYSIOLOGY

PHY 451 Physiology I. A comprehensive physiology course which deals with essentially all of the major organ systems except the CNS. Concept formation and problem solving are stressed. Lectures are supplemented by small group discussions and laboratory exercises. Students are expected to discuss assigned study questions in the group discussions. Laboratory exercises are divided between conventional experiments and computer simulations of physiological systems. FA (4-2-5) [60 hours] Rovick.

PHY 452 Physiology II. Continuation of PHY 451. Prerequisite: PHY 451. WI (5-2-5) [61 hours] Rovick.

PHY 502 Introductory Membrane Biophysics. Study of fundamental processes involved in movement of ions across membranes, excitability in nerve and muscle, equivalent circuit analysis, artificial membrane systems,

structure of membranes and active transport processes. (4-0-4)

PHY 503 Physiology of Striated Muscle. Topics include fundamentals of excitation-contraction coupling, mechanics of muscle, equivalent circuit analysis, muscle biochemistry and developmental aspects of nerve and muscle. (4-0-4) Donaldson.

PHY 504 Neurophysiology. This course presents a conceptual approach to the understanding of CNS functions. Discussion includes normal function and selected areas of pathology and current research. A one-hour student presentation is required. SP (2-0-2)

PHY 513 Cardiovascular Physiology. Students will read and discuss the original papers that form the foundation for our current understanding of heart function and control, peripheral vascular control and transcapillary exchange. The works will be evaluated in terms of their significance at the time and their present relevance. (4-0-4) Rovick.

PHY 514 Functional Neurophysiology. An examination of physiology of neurons and glia, synaptic processes, sensory receptor physiology, spinal cord, cerebellum and motor control, peripheral mechanisms in sensory systems and higher functions of the nervous system. Relevant neuroanatomical concepts will be included. SP (4-2-4) Staff.

PHY 523 Circuit Theory and Practical Design. A tutorial laboratory course designed to acquaint the student with the principles of design and construction of various electronic equipment commonly encountered in modern physiology. (3-2-4) Guiffre.

PHY 524 Linear Differential Equations and Transform Methods. Study of first and higher order linear equation, linear algebra techniques, finite difference equations, Fourier series and transforms, Laplace transforms and applications to solution of differential equations. (4-0-4)

PHY 525 Linear Systems Analysis. Topics include block diagrams, feedback, frequency domain analysis, noise and its analysis and partial differential equations and their solution. Prerequisite: PHY 524. (4-0-4) Mathias.

PHY 531, 532 Physiological Modeling I, II. This course covers control theory, the human motor system and feedback interactions in the human motor system. SU FA (4-0-4) (4-0-4) Gottlieb.

PHY 555 Physiology of Cellular Homeostasis. Integrated physiological content related to cellular homeostasis/viability in humans. Focus is on those selected aspects of cardiovascular, nervous, hormonal, respiratory, and renal systems that account for regulation of cellular fluid, electrolyte and energy/thermal balances. Prerequisite: undergraduate mammalian anatomy and physiology or permission of course director. FA (6-0-6) Schauf, Donaldson.

PHY 590 Special Topics in Physiology. An advanced course dealing with selected topics in physiology. The particular subjects vary from year to year. (v)

PHY 598 Introduction to Research. A tutorial course designed to familiarize students with the literature and techniques applicable to modern physiological research. FA WI SP SU (v-v-v)

PHY 640 Applied Electrophysiology. An advanced laboratory course introducing students to the basic techniques of modern electrophysiology. Prerequisites: PHY 502, 503, 523. (3-6-6) Staff.

PHY 641 Molecular Mechanisms in Control of Ion Permeability. An advanced course dealing with special topics in the molecular control of excitability and laboratory instruction in voltage clamp techniques. Offered alternate years by arrangement. Prerequisite: PHY 502. (4-0-4) Schauf, Cohen.

PHY 651 Advanced Topics in Muscle Physiology. Topics include equivalent circuit of skeletal muscle, problems in excitation-contraction coupling and molecular events in the generation of mechanical force. Prerequisite: PHY 503. (4-0-4) Donaldson, Eisenberg.

PHY 653 Problems in Synaptic Physiology. A detailed review of current experimental and theoretical problems in transmitter release and activation of postsynaptic receptors. Prerequisites: PHY 451, 503, 514. (4-0-4) Nelson.

PHY 655 Sensory Neurophysiology. An advanced tutorial dealing with the function of sensory systems and information processing. Prerequisite: PHY 514. (4-0-4) Hoepfner.

PHY 656 Neural Correlates of Behavior. An advanced tutorial dealing with the organization of simple invertebrate nervous systems and the relation between electrical properties of its elements and its behavior. Prerequisites: PHY 514, 655. Alt. SP (4-0-4) Michael.

PHY 690 Research Topics in Physiology. With a member of the staff, the student participates in a laboratory-based experience in an area of current research. The level of participation depends on the student's background and will include examination of the literature, a review of the topics being investigated and opportunities to participate in experimental work. In addition to work in the laboratories, independent experimental or bibliographic projects may be undertaken with the approval of a faculty member. A report is prepared describing the work attempted and accomplished. Prerequisite: PHY 452. SP SU [8 weeks] Schauf.

PHY 699 Dissertation
Research. Postcandidacy research by arrangement with staff. FA WI SP SU (v-v-v)

PREVENTIVE MEDICINE

PVM 452 Preventive Medicine I: Fundamentals of Epidemiology and Biostatistics. A basic introduction for the medical students to the principles and methods of epidemiology and biostatistics. Topics include the following: the calculation of rates; incidence and prevalence; sensitivity and specificity in screening; calculation of risk and its significance; study designs; comparative analysis; sampling; tests of significance and correlations. At the completion of the course, the student should be able to critically appraise articles in the clinical research journals. FA [12 hours] Norusis.

PVM 453 Preventive Medicine II: Community Health Experience. The medical student is introduced to the concept of community health by visiting some public health and community-based primary care programs operating in the Chicago areas. Three days are devoted to field trip activities that illustrate the major concepts and techniques of community medicine. All students spend one day visiting patients with home health care nursing staff. SP [3 days field experience; 4 hours] Hall.

PVM 503 Preventive Medicine III: Community Health. This overview course provides the medical student with current factual information about disease mortality and morbidity rates; changing demographic and epidemiological trends and specific elements of the health care system such as manpower, facilities, services, utilization patterns and costs and financing. Additionally, it offers some perspectives on the changing health of the nation with special attention to disease prevention and health promotion as they apply to meeting the Surgeon General's goals for 1990. FA [16 hours] Eckenfels.

PVM 504 Preventive Medicine IV: Study Groups in Preventive Medicine. Study groups on special topics in preventive medicine and community health (e.g., health and poverty, preventive nutrition, occupational health) with assigned tutors are arranged so medical students have an opportunity to study a topic of their interest in depth. Classroom size is kept small (10-15) to promote open discussion. WI [10 hours] Assigned tutors.

PVM 541 Biostatistics I. A basic introduction to the use of statistics in the health sciences. Topics covered include: descriptive statistics, probability, sampling, estimation, t- and Z-tests, chi-square tests, one-way analysis of variance and nonparametric statistics. Students will do some statistical computations on the computer. FA (4-0-4) Norusis, Shott.

PVM 542 Biostatistics II. An extensive introduction to regression, two-way analysis of variance and analysis of covariance. Regression topics covered include dummy variable, transformations, stepwise regression and residual analysis. Most of the analysis will be done using computer programs. Prerequisite: PVM 541. WI (3-0-3) Norusis, Shott.

PVM 543 Biostatistics III. An introduction to multivariate statistical techniques, including factor

analysis, discriminant analysis, multivariate analysis of variance, loglinear analysis and cluster analysis. Extensive use will be made of computer programs. Prerequisite: PVM 542. SP (3-0-3) Norusis, Shott.

PVM 599 Independent Study. Advanced topics by arrangement with instructor. (v)

PVM 601 Primary Care. Ambulatory care in a physician's office is the basis for this clerkship. Emphasis is on preventive measures and follow-up care. By individual arrangement, experience is available in a variety of settings, such as group practice, inner city clinics or rural practice. Experience in foreign countries can also be arranged. Prerequisite: CCS 502. FA WI SP SU [4-12 weeks] Schoenberger.

PVM 603 Occupational Medicine. This experience provides a combination of didactic and practical work in approaching the problems of health maintenance and environmental hazards in diverse industrial settings. Prerequisite: MED 601. FA WI SP SU [8 weeks] Kassriel.

PVM 604 Field Experience in Epidemiology. Emphasis is placed on the collection and analysis of data obtained in epidemiologic studies. The student may select a project and is expected to become familiar with field epidemiologic techniques and tools, including questionnaire design and interviewing. Primary focus is on studies of cardiovascular disease, with special emphasis on the control of hypertension and prevention of cardiac disease. Prerequisite: CCS 502. FA WI SP SU [12 weeks] Schoenberger.

PVM 605 Research Studies in Health Care Delivery. Under supervision, the student undertakes research on problems in health care delivery. The models available in the Medical Center are utilized primarily, but other systems may be studied by arrangement. Such areas as health evaluation programs, the use of paramedical personnel, medical audit and emergency room care are available. Prerequisite: CCS 502. FA WI SP SU [8 weeks] Schoenberger.

PSYCHIATRY

PSY 501 Introduction to Psychopathology. A study of the range of psychopathology that will be manifested in clinical situations. By reviewing diagnostic criteria and by studying etiological factors underlying various forms of psychopathology that range from disturbances in cellular and neurotransmitter function through psychological and social stresses, students develop a basic understanding of common psychiatric conditions. Prerequisite: BHV 453. FA (3) [33 hours] Zadylak.

PSY 601 Core Clerkship in Psychiatry. Basic clinical and didactic exposure to the major psychiatric disorders is provided with the focus on their diagnosis and treatment. Emphasis is placed on aspects of psychiatry relevant to the primary practitioner with a holistic approach to patient

care. Systems concepts of care are presented in an integrated manner through graded, intensive, clinical experiences. Inpatient, partial hospitalization and ambulatory settings are used for assignment of patient responsibility. Prerequisite: CCS 502. FA WI SP SU [6 weeks] Zadylak.

PSY 602 Psychosomatic Medicine. Adults and children hospitalized on medical, surgical, obstetric or pediatric services are studied with supervised diagnostic evaluation and continuing management. The role of the milieu--home, community and hospital--is emphasized. Special work is done with dialysis patients, transplant patients, patients with malignancies and those undergoing intensive care. Prerequisite: PSY 601. FA WI SP SU [6 weeks] S. Cavanaugh.

PSY 603 Child Psychiatry. The important variations in behavior in the young are studied, with emphasis on various therapeutic approaches in the setting of a day hospital for children. The pediatric floor, private office, outpatient clinic and the Child Psychiatric Clinic are also used as settings for clinical observations. Prerequisite: PSY 601. FA WI SP SU [4 weeks] Poznanski.

PSY 604 Adult Psychiatry. The objective is to increase the student's knowledge of various psychiatric disorders and to improve knowledge and skills in drug therapy, individual psychotherapy, family therapy and group therapy. Emphasis is placed on crisis management and brief therapy in a setting providing continuity of care, including in-home visits, community clinics, hospital clinics, partial hospitalization and full-time hospitalization. Prerequisite: PSY 601. FA WI SP SU [4-8 weeks] Bagri, Corbett.

PSY 605 Geriatric Psychiatry. The focus is to increase the amount of experience in treating elderly patients with psychiatric presentations superimposed on medical problems, to improve psychiatric diagnostic skills and uses of psychotherapy and pharmacotherapy with elderly patients, and to learn more about psychological changes that accompany the aging process. Also students will become familiar with normal and abnormal states and processes with the elderly by means of: (1) readings in the field of Geriatric Psychiatry, (2) direct treatment of select patients and (3) supervision with attending psychiatrists, fellows and residents on rotation. Prerequisite: PSY 601 FA WI SP SU [4 weeks] Ripeckyj.

PSY621 Outpatient Psychiatry. The focus is to develop diagnostic and treatment skills for outpatients, to learn and implement brief and intermediate length psychotherapeutic interventions and to develop knowledge and skills in psychopharmacologic treatment of outpatients. Students will increase their awareness of themselves as clinicians and the importance of transference and countertransference in the care of patients through intensive individual supervision from faculty and residents. Attendance will be required at diagnostic treatment conferences and advanced courses in psychotherapy and pharmacology. Prerequisite: PSY 601 FA WI SP SU [4-12 weeks] Fink.

PSY 642 Forensic Psychiatry. The Section on Psychiatry and the Law provides the student with a comprehensive clinical and academic introduction to socio-legal issues in contemporary psychiatric practice and research. Through the clinical rotation at the Isaac Ray Center, the student will gain first hand experience in the evaluation and treatment of selected mentally ill offenders under supervision. The student will be expected to cover a reading list dealing with the important topical issues in social-legal psychiatry: civil commitment, competency to stand trial, the insanity defense, right to treatment, right to refuse treatment, confidentiality and privilege, etc. Participation in an ongoing appropriate research project is encouraged. The student receives individualized instruction from an attorney, a postdoctoral fellow in law and psychiatry, the director of the section and appropriate staff of the Isaac Ray Center. The student will also rotate to Elgin State Hospital one day per week with faculty and fellows to evaluate and treat the criminally insane. Prerequisite: PSY 601 FA WI SP SU [4-6 weeks] J. Cavanaugh.

PSY 651 Substance Abuse. Students will learn to recognize, appropriately evaluate and treat patients with substance abuse disorders in inpatient and outpatient settings, to become familiar with detoxification and medical complication of substance abuse, and to learn the role of the physician in working with other substance abuse professionals. Reading of pertinent literature required. Supervised management of patients with substance abuse disorders. Prerequisite: PSY 601 FA WI SP SU [4 weeks] Tilkin.

PSYCHOLOGY

NOTE: Courses numbered 550 and above require admission to the graduate program in psychology and permission of the program director.

PSC 501 Psychology of Learning. This course examines basic learning processes from an historical perspective and through problems of current interest. Topics include principles of classical and operant conditioning, discrimination and generalization, the nature of reinforcement, aversive control of behavior, biological constraints on learning and neural substrates of learning and memory. (3)

PSC 505 Biostatistics I. Same as PVM 541.
(4 - 0 - 4)

PSC 506 Biostatistics II. Same as PVM 542.
(3 - 0 - 3)

PSC 507 Biostatistics III. Same as PVM 543.
(3 - 0 - 3)

PSC 508 Methods in Behavioral Research. This course examines theory and research methodology as they influence the formulation of hypotheses and research designs in behavioral, social and clinical research. Prerequisite: PSC 507. (3)

PSC 521 Biological Bases of Behavior. An examination of the neural substrates of behavior. Topics include synaptic transmission and patterns of neural activity, sensory and motor processes, sleep and arousal and emotion and motivation. (3)

PSC 522 Psychophysiology. Evaluation of psychological processes by means of physiological responses. Methodology and empirical data in the psychophysiological analysis of attention, perception, learning and memory. Critical analysis of nervous system organization and responsiveness to acute stress and to chronic dysfunction. Prerequisites: PSC 501, 521. (3)

PSC 531 Developmental Psychology I: Infancy through Adolescence. The first of a two-course sequence on the normative processes of behavioral change across the life span. Major theories of cognitive, social, personality and emotional development from early infancy through adolescence are presented. Methodological issues are studied in the context of current and classical research findings. (3)

PSC 532 Developmental Psychology II: Adulthood and Aging. A continuation of PSC 531. Survey of current research and theory in development throughout adulthood. Empirical data concerning the influence of biological changes, social factors, cognitive processes and mental and physical health on adult development are reviewed. Prerequisite: PSC 531 (3-0-3)

PSC 534 Developmental Psychobiology. Brain-behavior relationships from infancy through puberty. Emphasis is placed on animal models and/or neurobehavioral analyses of attention disorders, hyperactivity, retardation, aggression/dominance, autism, etc. The anatomical, neurophysiological and behavioral components of brain development and brain damage are examined throughout the early developmental period. Prerequisites: PSC 501, 521. (3)

PSC 536 Psychology of Aging. An advanced analysis of the psychology of aging, with consideration of biological and psychosocial factors affecting developmental changes in late adulthood. Topics include methodological issues in research, cognitive processes, personality, psychopathology and the influence of health and illness on aging and behavior. Prerequisite: PSC 532. (3)

PSC 541 Theories in Social Psychology. Theoretical approaches to the study of social interaction. Analysis of individual, group and collective behavior from both psychological and sociological perspectives. Topics include general theories and methods, empirical data on attribution and social perception, attitude formation and change, conformity, small groups and collective behavior/mass movements. (3)

PSC 542 Social Bases of Behavior. Examination of family, small group, and social networks as determinants of behavior and as environments within which behavior

occurs. Includes theory and processes of role allocation, dyad and triad formation, coalitions and conflict. (3)

PSC 543 Topics in Medical Sociology. Review of current topics which are announced each term. May be repeated. (1-3)

PSC 545 Health and Illness Behavior. Empirical review of concepts basic to the understanding of health and illness behavior, emphasizing a multidimensional model. (3)

PSC 551 Theories of Personality. An examination of the major traditions in personality theory and research: psychoanalytic, trait, social learning and phenomenological. Empirical research relating to personality consistency and behavioral specificity is reviewed. (3)

PSC 548 Program Evaluation. Theory and practice of program evaluation in health care settings. Topics include the uses of evaluation in health service organizations, methodological issues in program assessment and problems encountered in communication and implementation of evaluation findings. Prerequisites: PSC 507, 541. (3)

PSC 553 Psychopathology. Description of psychopathology, with review of defining signs and symptoms in children and adults. The interplay of social, learning and physiological factors in the etiology of behavioral disorders is considered. Prerequisites: PSC 532, 551. (3)

PSC 554 Behavior Disorders in Children. Major behavioral disturbances of childhood and their relationship to psychological theories and research. Prerequisite: PSC 553. (3)

PSC 557 Human Neuropsychology. Consideration of complex psychological functions as they relate to the human central nervous system. Topics include attention, emotion and motivation, perception, psychomotor behavior, language, memory and problem solving. Empirical data concerning cerebral localization, asymmetry of function and cerebral plasticity are reviewed. Prerequisite: PSC 521. (3)

PSC 558 Psychology of Sleep. Major theories of mental activity during sleep, including a critical analysis of the relationship between neurophysiological activity and psychological activity during sleep and the interaction between sleeping and waking. Methodological approaches to dream content analysis and to the study of dream function are considered. Prerequisite: PSC 521. (3)

PSC 571 Principles of Psychotherapy. An introduction to verbal psychotherapy. Survey and analysis of techniques in psychoanalytic and neoanalytic, client-centered and cognitive psychotherapy. Prerequisite: PSC 551. (3)

PSC 572 Principles of Behavior Change. An overview of theoretical approaches, empirical studies, and practical issues in the field of behavioral assessment and intervention. Behavioral observation, principles of behavioral management and cognitive restructuring. Prerequisite: PSC 501. (3)

PSC 575 Assessment of Intelligence. Examination of theoretical and practical issues in the measurement of intelligence. Topics include the nature of intelligence, the construction and use of intelligence tests, administration of standardized tests and analysis and presentation of test data. Lecture and laboratory. (3)

PSC 576 Assessment of Personality. Historical and theoretical issues in projective and objective personality assessment. Methodological issues involving empirical vs. rational test construction, clinical vs. actuarial prediction, response styles, etc., are considered. Lecture and laboratory. (3)

PSC 581 Directed Research. Individual projects (nondissertation research) under the supervision of a faculty member. Arranged by consultation with the program director. (1-6)

PSC 590 Special Topics in Psychology. Advanced topics selected for examination and discussion. Topics vary from term to term. (1-3)

PSC 599 Directed Readings. Readings in a topic area of particular interest under the direction of a faculty member. Arranged by consultation with the program director. (1 to 3)

PSC 605 Professional Issues. Topics of professional concern in health psychology. (3)

PSC 611, 612, 613 Practicum in Assessment and Intervention Skills I, II, III. A three-quarter sequence of supervised experience in assessment and intervention. This practicum involves experience in a variety of psychotherapeutic techniques. Students are supervised in the administration, scoring and interpretation of intelligence and personality tests, including the Wechsler Intelligence Scale, Stanford-Binet, MMPI, TAT and Rorschach. (2) (2) (2)

PSC 616, 617, 618 Practicum in General Clinical Psychology I, II, III. A three-quarter sequence of supervised experience with both children and adults. The practicum integrates clinical course content with the evaluation and management of behavioral and emotional problems in diverse patient populations. Prerequisite: PSC 613. (3) (3) (3)

PSC 621 Clinical Health Psychology. An examination of psychological processes as they relate to the diagnosis and treatment of physical disease. Prerequisite: PSC 553. (3)

PSC 622 Advanced Psychotherapy. Prerequisite: PSC 571. (3)

PSC 623 Advanced Behavioral Interventions. Prerequisite: PSC 572. (3)

PSC 625 Advanced Rorschach Interpretation. Theory of the Rorschach projective process and the administration, scoring and interpretation of test protocols. Issues covered are norms, reliability, personality description, diagnosis of psychopathology and use in planning treatment. Prerequisites: PSC 553, 576. (3)

PSC 629 Practicum in Clinical Health Psychology. Intensive, supervised experience with adult medical populations. Emphasis is given to the evaluation of medically related problems from a psychological perspective, and the development of integrated, comprehensive treatment plans. May be repeated to a maximum of six credits. Prerequisite: PSC 617. (3)

PSC 631 Pediatric Psychology. Principles of clinical health psychology as they apply to children and adolescents. Intervention methods appropriate to children in inpatient settings are emphasized. Prerequisite: PSC 553. (3)

PSC 633 Assessment in Pediatric Psychology. Theoretical and practical issues in the assessment of individuals aged 3-16. Emphasis is given to assessment, recommendations for treatment/intervention and consultation with parents, medical and professional staff. Lecture and laboratory. Prerequisites: PSC 575, 576. (3)

PSC 639 Practicum in Pediatric Psychology. Intensive, supervised experience in a variety of diagnostic and intervention techniques appropriate to pediatric populations. May be repeated to a maximum of six credits. Prerequisite: PSC 618. (3)

PSC 641 Clinical Neuropsychology. Systematic analysis of behavioral disturbances associated with disease, injury and/or functional alteration of the central nervous system; behavioral manifestations associated with specific neurological syndromes and diseases. Prerequisite: PSC 557. (3)

PSC 643 Assessment in Clinical Neuropsychology. Rationale, procedures and substantive content of neuropsychological consultation. Selection and administration of appropriate assessment procedures, evaluation and integration of data, formulation of treatment and management recommendations and consultation with physicians and other health professionals are considered. Lecture and laboratory. Prerequisites: PSC 557, 575, 576. (3)

PSC 649 Practicum in Clinical Neuropsychology. Supervised experience in neuropsychological assessment and consultation. May be repeated to a maximum of six credits. Prerequisite: PSC 617. (v)

PSC 651 Clinical Sleep Disorders. Diagnosis and treatment of sleep and arousal disorders as recognized by the Association of Sleep Disorders Centers. Major

diagnostic categories are reviewed in terms of clinical presentation, etiology, laboratory findings and potential therapies. Lecture and laboratory. Prerequisite: PSC 558. (3) [2 weeks for medical students]

PSC 659 Practicum in Clinical Sleep Disorders. Supervised experience in the sleep disorders service: patient interviews, sleep assessments, laboratory evaluation and case presentations. May be repeated to a maximum of six credits. Prerequisite: PSC 558. (3)

PSC 669 Advanced Practicum. Practicum experience in the field of a student's special interest. Arranged by consultation with the program director. (v)

PSC 681 Directed Research. Individual projects (nondissertation research) under the supervision of a faculty member. Arranged by consultation with the program director. (v)

PSC 699 Dissertation Research. (3-12 credits per quarter)

PSC 700 Internship. (Noncredit)

RADIOLOGY

RAD 601 Diagnostic Radiology. Basic radiologic principles are demonstrated and the role of diagnostic radiology as a clinical setting for patient care and medical and surgical specialty consultations is emphasized. Students prepare one case for the teaching file. Prerequisites: MED 601, SUR 601. FA WI SP SU not in May, June or July [4 weeks] Adler.

RAD 606 Nuclear Medicine. All facets of the disciplines of nuclear medicine are studied, with particular emphasis on radionuclide scanning of organ systems for diagnostic and research purposes. Emphasis is on pathophysiologic correlation and case study. Literature review and individual topics are encouraged to provide in-depth study in the broad field of nuclear medicine. Prerequisite: MED 601. FA WI SP SU [2-4 weeks] Fordham.

RAD 621 Radiation Oncology. The student would join both attending and resident staff in seeing consults, join in treatment decisions, plan treatment, and observe radiation treatment. The objectives of the clerkship are (1) exposure to different types of cancer, (2) exposure to interdisciplinary approach in cancer treatment, (3) basic understanding of the role of radiation therapy in cancer treatment, (4) understanding of the effect of radiation on living tissue and (5) exposure to and interaction with the oncology patient. FA WI SP SU [2-4 weeks]

RELIGION AND HEALTH

REL 451 Introduction to Religion. This course will examine religion in human experience as the use of ritual, symbol and story linking human needs with the ultimate and the sacred; as means, end and quest; as marker of

passages in the life cycle and as help and hindrance in sickness, suffering and death. (2-0-2)

REL 452 Bioethics in Health Care. This interdisciplinary course considers representative ethical issues in health care; paternalism vs. the enhancement of patients' autonomy as a perspective around which to organize health care; principles of ethical decision making in health care and specific issues, such as abortion, treatment of the dying, allocation of resources and religious and other societal factors that can lead to ethical dilemmas. (2-0-2)

REL 453 Illness and Faith. An examination of patients' understanding of body, time, shame, community, the self-sacrifice and suffering, religious resources and the relationship between God and illness in light of their faith. Employs seminar method and some clinical materials. (2-0-2)

REL 454 Healing Women and the Health Care System. An examination of the issues related to the assessment of women as patients and as caregivers, how the assessment influences goals and approaches to patient and family care, the historical impact of women on the health care of the nation, and their impact on today's health care system. The purpose of the course is to provide each of its participants with a fuller understanding of gender differences so that the care offered to and by them may contribute to greater wholeness and healing. (2-0-2)

REL 464 Death and Dying. An examination of the issues that dying persons face and the ways that they face them. Instructive stories of dying persons, their families and those who take care of them are studied. A careful comparison of the stage theory and the continuity theory of dying is made. The awareness of dying, truth telling, responsibilities to the dying, times and places of dying and suicide are addressed. (2-0-2)

REL 465 Death and Dying in Literature. Drawing on classical and contemporary literature, this course will consider various portrayals of death, dying and bereavement; the meanings of death in the life of the family and the society and themes of pain, suffering, courage, resolutions of conflict and life in the face of death. (2-0-2)

REL 576 Values and Power: Ethics for Health Care Managers. This course will consider questions, such as the following: What is ethics? What are the basic ethical questions that health care managers will encounter? What are the ethical responsibilities of the health care administrator? What are the health care managers' responsibilities for providing an environment in which others can examine their ethical responsibilities? (3-0-3)

REL 623 Vital Themes in Religion and Health. Presentations by professionals from other disciplines, by religion and health faculty and by students attempt to bring theoretical material to bear on the practical work of ministry and to help students clarify their operational

concepts. In the past, this course has included the following:

Suffering: Its Importance for Health. Philosophical and theological responses to suffering, their expression among hospital patients and their implications for healing.

Aging, Faith and Health. Important biological, psychological and social changes that accompany aging; the role of faith in the life of older persons, particularly in their coping with illness.

Faith as a Factor in Health. Major theories of disease and health, scientific and unscientific, Western and nonWestern; literature on the role of faith, trust and hope in recovery from illness; case examples from students' experience. (v-v-v)

SPEECH AND HEARING SCIENCES

SHS 501 Speech and Hearing Sciences. Normal processes in language, speech, and hearing. Concepts in basic acoustics forms and acoustic phonetics are presented. Theories of hearing, language and speech are considered along with an introduction to psychoacoustics. (4-0-4)

SHS 502 Speech and Hearing Science Lab. The laboratories focus on measurement techniques, experimental procedures and use of instrumentation related to speech and hearing sciences. (0-1-1)

SHS 506 Audiology II. A survey of audiologic tests developed to provide differential diagnosis of auditory pathology. Course content will be applied to students practicum experience. (3-0-3)

SHS 511, 512, 513, 514, 515 Speech-Language Pathology Practicum I, II, III, IV, V. Supervised clinical experience at the Medical Center with persons manifesting communication impairments. Students develop the ability to evaluate, differentially diagnose and formulate treatment programs. Counseling patients presenting with communication impairments is included. Report writing skills are emphasized. SHS 511 also includes a 1 credit module on basic audiologic testing. (v-v-v)

SHS 516, 517, 518, 519, 520 Audiology Practicum I, II, III, IV, V. Supervised clinical experience with patients displaying various hearing impairments and disorders. Students develop skills in diagnostic evaluation, case histories, counseling, and treatment for pediatric through geriatric patients. The relationship of audiology to other health care professions is examined. SHS 516 also includes a one credit module on basic audiologic testing. (v-v-v)

SHS 522 Language Disorders in Children. An examination of normal and abnormal language development. Consideration is given to theories of

language learning, prerequisites to symbolic communication, normal acquisitions, language analysis procedures, and etiological variables. Methods of language assessment, treatment models, and therapeutic procedures are studied. (3-0-3)

SHS 523 Sign Language. This introduction is designed to develop sign language skills to a beginning level for both expressive and receptive vocabulary. The student will learn the manual alphabet, differentiate American Sign Language from Signed English, and be briefly exposed to the deaf culture. (0-2-2)

SHS 524 Fluency, Dysfluency, and Stuttering. Child and adult fluency disorders will be studied. Students will learn to describe pertinent characteristics of speech fluency, identify the presence of a clinically significant fluency problem, and determine etiologic and maintaining factors. Appropriate management strategies will also be considered. (3-0-3)

SHS 526 Industrial Audiology. An examination of hearing conservation programs in industry and the current regulations governing them. (2-0-2)

SHS 527 Total Communication. Total communication as a philosophy for educating hearing-impaired children is examined. Classroom discussion of assigned readings related to the impact of deafness. Students develop an intermediate level of fluency in sign language and a spirit of advocacy for the hearing impaired. Observation in a classroom for the hearing impaired. (3-0-3)

SHS 531 Amplification for the Hearing Impaired. The foundation for a working knowledge of hearing aids is laid in this course. A brief historical perspective on amplification is accompanied by an evaluation of the modern hearing aid. This includes a discussion of the variety of aids available, earmold acoustics, design and modifications, selection techniques, In Situ performance and fitting procedures. Electroacoustic analysis and troubleshooting will be covered along with Illinois regulations for dispensing hearing aids. In addition, hearing aid evaluations and fittings for children and assistive listening devices for all ages will be studied. Cochlear implants will be included as part of a discussion on future research. Laboratory participation will include earmold impressions, electroacoustic analysis, earmold modifications, troubleshooting hearing aids and probe microphone measurements. (2-1-3)

SHS 532 Advanced Hearing Aids. An examination of hearing aid dispensing by the audiologist. State certification, in-the-ear hearing aid modification, marketing techniques, and advanced hearing aid measurements are some of the topics covered. (1-2-3)

SHS 533 Aural Rehabilitation. An examination of adult aural rehabilitation with a historical review of traditional rehabilitation. Visual, auditory, and bi-sensory stimuli in communication are considered along with assessing communicative function, auditory training, speechreading, amplification, assistive listening devices,

and the psychosocial aspects of hearing impairment. The geriatric population and the working-age adult will be considered as separate rehabilitative challenges. (3-0-3)

SHS 534 Pediatric Aural Rehabilitation. An examination of the strategies involved in the management of hearing impaired and deaf children. Topics discussed include parent counseling, auditory training, speech and language training and educational opportunities. Various theoretical models will be covered, and students will receive practice in designing management programs for hearing impaired children and their parents. The audiologist's role in case management will be discussed. (3-0-3)

SHS 542 Electronystagmography. Anatomy and physiology of the vestibular and ocular motor systems will be reviewed. Disorders of patients presenting vertiginous symptoms will be discussed with emphasis on technique and interpretation of ENG findings. Photoelectric ENG and acceleration measurements will be introduced. (3-0-3)

SHS 543 Electrophysiologic Assessment of the Auditory System. A review of the principles and practices of electrophysiologic testing of the auditory system. Electrocochleography, brainstem evoked potentials, and cortical evoked potentials are some of the responses examined. (3-1-4)

SHS 544 Pediatric Audiology. The major etiologies underlying hearing impairments encountered in the pediatric population. Identification programs for neonates and children are discussed. Primary emphasis is placed on pediatric evaluation skills, including differential case history, behavioral observations, and audiologic test procedures. (3-0-3)

SHS 545 Anatomy, Physiology and Pathology of Speech and Hearing. The neurologic and musculoskeletal bases of both speech and hearing. (4-0-4)

SHS 546 Anatomy and Physiology of Speech and Hearing Lab. The lab section examines the structures important for speech and hearing through the use of cadavers. (0-1-1)

SHS 548 Advanced Electrophysiologic Assessment. A detailed examination of some of the less commonly used clinical evoked potentials. Responses covered include the frequency following response, middle latency response, P300, and visual and somatosensory responses. In addition, new application of standard AEP procedures will be covered. (2-1-3)

SHS 550 Electronystagmography Laboratory. A review of basic technique and practical considerations for performing ENG. (0-1-1)

SHS 551 Diagnostic Methods in Speech-Language Pathology. The acquisition of diagnostic reasoning and general assessment skills. Procedure for evaluation of

patient records, conducting patient interview, and administration of standardized and nonstandardized test instruments will be presented. Models for differential diagnosis will be studied. (4-0-4)

SHS 552 Diagnostic Laboratories. Diagnostic evaluation on patients with communication disorders using a variety of diagnostic instruments. (0-1-1)

SHS 553 Instrumentation for Hearing and Speech. An introduction to instrumentation used in the measurement and treatment of speech and hearing processes. Concepts related to the evaluation of instruments are presented. Calibration procedures are demonstrated. Clinical and research applications are emphasized. (1-2-3)

SHS 556 Swallowing I: Diagnosis. A review of the anatomy and physiology of normal deglutition. Disorders of deglutition, both neuromuscular and post-surgical, will be studied. Bedside and radiographic diagnosis will be covered. (1-0-1)

SHS 557 Swallowing II: Management. A study of the management decisions and therapy techniques for patients with disordered oral feeding due to neuromuscular disorders and post-surgical changes. Medical and surgical treatments will be included. (1-0-1)

SHS 558 Swallowing III: Instrumentation. An overview of study techniques and instrumentation used in assessing swallowing disorders including videofluoroscopy, cineradiography and manometry. (1-0-1)

SHS 561 Articulation Disorders. The focus of this course is on normal and abnormal aspects of speech. Consideration is given to phonetic transcriptions, theories of and prerequisites to speech development, phonological analysis procedures and normal acquisition. Etiological factors related to abnormal articulation are examined. Articulation assessment strategies, treatment models, and remediation procedures are studied. (3-0-3)

SHS 562 Craniofacial Anomalies. An overview of the natural history of cleft palate and other craniofacial anomalies characterized by specific speech problems. The emphasis will be on the development of the multidisciplinary team, speech disorders secondary to these craniofacial anomalies, history of previous care and treatment of persons with these disorders, update on recent research, new treatment developments, and approaches to diagnostic and therapeutic speech intervention. Observation of diagnostic evaluations and treatment planning by a multidisciplinary craniofacial team is included as part of the curriculum. (3-0-3)

SHS 563 Voice Disorders. The assessment and management of voice disorders. Students will acquire skills in identifying various pathologies, forming hypotheses as to etiologic and maintaining factors and implementing management strategies. The contribution of

otolaryngology, neurology, and psychiatry in patient management will also be reviewed. (4-0-4)

SHS 564 Aphasia. Adult onset neurogenic language disorders are examined with emphasis on pathophysiology, symptomology, diagnosis, treatment, and the role of counseling. Theoretical models and past and current controversies will be included. (3-0-3)

SHS 565 Motor Speech Disorders. The identification and management of speech disorders secondary to central and/or peripheral nervous system damage. Topics will include conducting a motor speech exam; components of the various dysarthrias; motoric and linguistic views of apraxia of speech; management. Neural basis of speech production will also be reviewed. (3-0-3)

SHS 567 Pathophysiology of Communication Disorders. A survey of communication disorders frequently encountered in a medical center environment. Students will acquire knowledge of the underlying physiological bases for these disorders in addition to the behaviors typically seen in pediatric or adult patients presenting with the disorders covered. (3-0-3)

SHS 568 Cognitive Disorders. Current trends in habilitation and rehabilitation of pediatric and adult patients with cognitive disorders will be addressed. The focus will be on the role of the speech language pathologists as a member of the interdisciplinary team. Neuropathologies, diagnostic procedures, recovery models, and treatment methods will be studied. (3-0-3)

SHS 575 Issues in Counseling. The major focus is on understanding the process of the helping relationship. In addition, skills and competencies that interact to influence effectiveness as a communicator will be developed. Knowledge of selected counseling theory as it integrates into practice will be acquired. (3-0-3)

SHS 582 Introduction to Research in Communication Disorders. The development of skills in understanding and critiquing research reports is emphasized. Principles of the scientific method and criteria for evaluating research are studied. Consideration is given to both group and single subject research designs. (4-0-4)

SHS 585 Professional Issues I. An introduction to various health professions in comprehensive patient care with an emphasis on their relationship with speech/language pathology and audiology. (1-0-1)

SHS 586 Professional Issues II. The presentation and discussion of professional issues pertinent to speech/language pathologists and audiologists working in a variety of settings. (1-0-1)

SHS 589 Research Practicum. The development of practical research skill through involvement in a research project. Research methods such as data collection, data analysis, and report writing are emphasized. (1-2-3)

SHS 590 External Practicum in Speech-Language Pathology. Supervised clinical experience at institutions is provided to develop advanced skills for persons with communications impairments. (v-v-v)

SHS 591 Advanced Clinical Training. Advanced training in speech-language pathology or audiology. (v-v-v)

SHS 595 External Practicum in Audiology. Students are placed at external practicum sites at Rush network hospitals and/or other cooperating institutions or facilities. (v-v-v)

SHS 597 Case Presentation. Students present an interesting clinical case with which they have been involved in management. Each student works with a supervising faculty member in preparing the presentation. (v-v-v)

SHS 598 Thesis. Under the guidance and direction of a faculty member and committee, the student originates, proposes, and executes an experiment. Thesis projects must reflect a high degree of scholarship. (v-v-v)

SHS 599 Independent Study. Students pursue in depth an area of their choosing under the direction of a faculty member. (v-v-v)

SURGERY

SUR 601 Core Clerkship in Surgery. Principles of preoperative and postoperative care, diagnosis of surgical disease, indications for surgery and physiological principles of surgery are stressed through the case study method. The clerkship teaches surgical pathophysiology; helps students recognize surgical emergencies and outline their therapy; improves diagnostic ability; encourages use of the library and increases poise in presenting cases. In addition to six weeks of general surgery, the students choose two three-week rotations from available surgical electives to complete the clerkship. Prerequisite: CCS 502. FA WI SP SU [12 weeks] Doolas.

SUR 604 Advanced Surgery Clerkship. The student assumes many of the duties and responsibilities of a resident physician. This includes responsibility for preoperative and postoperative care, participation in surgery, and rotating on-call service. The work is primarily with hospitalized patients, with opportunity for ambulatory and elective surgery. Independent library investigative projects are assigned. Prerequisite: SUR 601. FA WI SP SU [4-8 weeks] Doolas.

SUR 605 Anesthesiology. Areas covered are cardiopulmonary resuscitation (CPR); airway management; respiratory inadequacy and artificial ventilation with mask and bag; circulatory inadequacy and support of the failing circulation; topical and infiltrative anesthesia and the actions and interactions of depressant and stimulant drugs commonly encountered or used by anesthesiologists. Students participate in preoperative

evaluation and preparation of surgical and obstetric patients. Prerequisite: SUR 601. FA WI SP SU [4 weeks] Badrinath.

SUR 606 Clinical Transplantation. The clinical aspects of transplantation, including donor and recipient surgery and preoperative and postoperative care are studied. The student participates in organ preservation as well. Seminars on the fundamental and clinical aspects of transplant immunology are held. Prerequisite: SUR 601. FA WI SP SU [4-8 weeks] Merkel.

SUR 611 Cardiovascular Surgery. This course emphasizes the clinical and laboratory diagnosis of cardiac (both congenital and acquired) and vascular disorders considered for surgical management. Indications for surgery, preoperative evaluation and postoperative care are discussed at patient rounds, in conferences and on an individualized basis. Prerequisite: SUR 601. FA WI SP SU [4 weeks] Najafi.

SUR 612 Surgical Intensive Therapy. This rotation exposes the experienced student to comprehensive management of critically ill surgical patients. Application of life support techniques including vaso-active drugs, mechanical aids to circulation, pacing, counter-shock, and respiratory therapy. Pathophysiologic discussion and integration with cardiopulmonary analysis of data obtained from invasive critical care medicine are emphasized. Radiologic, medical, and surgical aspects of critical care medicine are also incorporated. Prerequisite: SUR 601, SUR 605. FA WI SP SU [4 weeks] Carroll.

SUR 616 Plastic and Reconstructive Surgery. The basic surgical principles of wound care, wound treatment and general techniques associated with the treatment of acute trauma, burns, lacerations and blunt trauma are studied. Instruction in the care of acute injury of the hand and basic instruction in the diagnosis and treatment of facial and bone fractures will be included. Experience in suturing animal wounds and actual surgical technique in the emergency room may be included. Prerequisite: SUR 601. FA WI SP SU [4-8 weeks] Curtin.

SUR 626 Principles of Urology. This clerkship provides further experience in the diagnosis and management of urological problems as a supplement to the basic clerkship in surgery. Prerequisite: SUR 601. FA WI SP SU [4 weeks] McKiel.

SUR 627 Genitourinary Neoplasia. The basic concepts of neoplasia, using the genitourinary neoplasms as models, are presented. These neoplasms have been selected because, collectively, they span the entire spectrum of malignancy. The student actively participates in the management of both hospitalized and ambulatory patients. Multidisciplinary seminars and individual projects are available. Departmental approval required. Prerequisite: SUR 601. FA WI SP SU [4 weeks] Flanagan.

SUR 651 Clinical Orthopedics. The primary emphasis is on examination, diagnosis, pathology and treatment of conditions affecting the musculoskeletal system. The

student participates in clinical work in physicians' offices and hospital facilities such as the cast room and the operating room. Prerequisite: SUR 601. FA WI SP SU [3 or 4 weeks] Gitelis.

SUR 652 Orthopedic Research. Research and bioengineering as applied to the musculoskeletal system are studied with particular emphasis on the pathomechanics of human gait, mechanics of lifting, experimental use of implants in animals and their effects on biologic systems. Prerequisite: SUR 601. FA WI SP SU [8 weeks] Andriacchi.

SUR 656 Clinical Neurosurgery. This clinical clerkship expands upon and demonstrates the practical application of neurological sciences. The emphasis is on diagnosis and pathophysiological correlation of diseases of the nervous system. Practical application of neurosurgical management and diagnosis as well as the treatment of neurosurgical emergencies is studied in detail. Prerequisite: SUR 601. FA WI SP SU [4 weeks] Whisler.

SUR 657 Principles of Ophthalmic Examination. Under the supervision of the staff, practical instruction is provided in the essentials of ophthalmic examination. Special emphasis is on the proper use of instruments. Prerequisite: SUR 601. FA WI SP SU [2 weeks] T. Deutsch.

SUR 658 Research in Ophthalmology. Research projects are available for students with a special interest in ophthalmology. Individual projects may be arranged with the department in cooperation with appropriate basic science or clinical departments. Prerequisites: MED 601, SUR 601. FA WI SP SU [8 weeks] F. Hughes.

SUR 659 Otolaryngology. Clinical experience is provided in the diagnosis and management of patients with diseases of the ear, nose, throat, head and neck. Office practice and the care of hospitalized patients provide the basis for clinical instruction, with emphasis on case study and proper use of instruments. Departmental pathology, radiology and otology conferences and journal club are included. Prerequisite: SUR 601. FA WI SP SU [4 weeks] Caldarelli.

SUR 661 Surgical Oncology. Concentrated experience in the surgical diagnosis and management of patients with tumors is provided. Correlation of surgical problems with anatomic and pathological physiology is stressed, including examination of gross and microscopic tissue. Attendance at the tumor clinic, tumor conference and head and neck tumor conference is required. Prerequisite: SUR 601. FA WI SP SU [6 weeks] Economou.

SUR 670 Speech and Hearing. An introduction to speech, language and hearing problems. Observation and interaction with patients demonstrating aphasia, dysarthria, stuttering, cleft palate and developmental speech abnormalities are provided. Experience in interpretation of basic hearing assessment, as well as special auditory tests to differentiate conductive and sensory neural hearing loss; cochlear and retrocochlear pathology, and nonorganic and organic hearing loss is also provided. Prerequisite: third-year medical student status. FA WI SP SU [2 to 4 weeks] Jensen.

SUR 671 Thoracic Surgery. The diagnosis, operative and postoperative care of patients with pulmonary and esophageal disorders are studied in both hospitalized and ambulatory patients. In addition, students assist in patient care, and topics are assigned for discussion. Prerequisite: SUR 601. FA WI SP SU [4 weeks] Kittle.



FACULTY

Departmental Faculty Listing 163

Alphabetical Faculty Listing 197

Faculty by Department

ANATOMY

Andriacchi, Thomas P.*
Assoc. Professor

Beck, Robert
Instructor

Cole, Ada A.
Instructor

Dinsmore, Charles E. *
Assoc. Professor

Durica, Thomas E. *
Asst. Professor

Galante, Jorge O. *
Professor

Gardiner, Richard
Asst. Professor

Hovde, Christian A.
Asst. Professor

Hughes, W Franklin *
Assoc. Professor

Jacob, Susan K. *
Asst. Professor

Kerns, James M. *
Assoc. Professor

Khodadad, Jena *
Asst. Professor

Kuszak, Jerome R.
Asst. Professor

Maibenco, Helen
Emeritus

Schmidt, Anthony *
Professor
Chair.

Schwartz, David E.
Asst. Professor

Seale, Raymond *
Professor

Sumner Jr., Dale R.*
Asst. Professor

Williams, James M. *
Asst. Professor

ANESTHESIOLOGY

Badrinath, Shyamala K.
Asst. Professor

Besser, Timothy P.
Assistant

Bondoc, Felipe
Associate

Braverman, Berton
Asst. Professor

Callahan, Patrick
Assistant

Carroll, Gilbert
Asst. Professor

Cocadiz, Norval
Instructor

Djordjevich, Ljubomir
Asst. Professor

Doncheff, Iwan
Asst. Professor

El Ganzouri, Abdel R.
Assoc. Professor

Elbaz, Nabil M. I.
Assoc. Professor

Fischer, Ronald
Asst. Professor

Ford, Erica W.
Asst. Professor

Froehlich, James
Instructor

Greenwald, Steven
Instructor

Hahn, Robert
Visit. Asst. Professor

Havdala, Henri S.
Professor

Heckel, V Eileen
Emeritus

Hegarty, John D
Assistant

Heller, Floyd N.
Assoc. Professor

Hompland, Scott J.
Instructor

Hunter III, James A.
Assistant

Hutchinson, Craig H.
Instructor

Ibrahim, Tahcin
Instructor

Ivankovich, Anthony
Professor
Chair.

Jaros, Joseph A
Assistant

Kassa, Christine
Instructor

Keane, Donal M.
Asst. Professor

Keh-wong, Elisa S.
Asst. Professor

Kerchberger, John P.
Instructor

Kind, Jonathan D.
Assistant

Kloep, Michael L.
Assistant

Konowitz, Howard
Assistant

Lai, Joseph C.
Asst. Professor

Lai, Tai Min
Instructor

Larson, John M.
Asst. Professor

Lastres, Enrique J.
Asst. Professor

Lin, Yuan-Hwai
Instructor

Logas, William George
Asst. Professor

Lubenow, Timothy R.
Instructor

Mady, Vekatgiri
Instructor

Mc Carthy, Robert J.
Asst. Professor

Mc Connell, John
Instructor

Meister, Michael D.
Instructor

Metha, Mansukh H.
Instructor

Miller, Paul E.
Instructor

Molnar, Robert
Instructor

Morch, E Trier
Emeritus

Murphy, Peter
Assoc. Professor

Newman, L. Michael
Asst. Professor

Parnass, Samuel M
Instructor

Prasad, Neerukonda
Instructor

Rose, Raymond F
Emeritus

Rothenberg, David M
Instructor

Sadove, Max S
Emeritus

Said, Ahmed
Assistant

Santander, Marc
Asst. Professor

Saxena, Sudershan
Asst. Professor

Seshadri, Kandiur
Instructor

Shapiro, Jeffrey D
Instructor

Shima, Arthur T
Visit. Professor

Silins, Astrida I
Asst. Professor

Spieß, Bruce D
Asst. Professor

Stetson, John B.
Professor

*Indicates faculty member also has an appointment in The Graduate College.

Thomason Jr, Richard D.
Asst. Professor

Tio, Diego U.
Associate

Tsai, Houn
Instructor

Tuman, Kenneth J.
Asst. Professor

Valdivia, Juan F.
Instructor

Wenzel, David R.
Instructor

Wong, Alfonso
Asst. Professor

Wong, Cynthia
Instructor

Woronowicz, Andrew
Assistant

BIOCHEMISTRY

Anderson, Kenning M. *
Assoc. Professor

Arsenis, Charalampos
Visit. Professor

Aydelotte, Margaret *
Asst. Professor

Bagdade, John *
Asst. Professor

Bezkorovainy, Anatoly *
Professor

Brocks, Dietrich
Visit. Asst. Professor

Byers, Sharon
Instructor

Chen, Chun-chang
Instructor

Cohen, Maynard
Professor

Cole, Edmond *
Professor

Dimuzio, Michael *
Asst. Professor

Dubin, Alvin *
Professor

Dudkiewicz, Alan B.
Asst. Professor

Harrison, William H. *
Professor

Hayashi, James A. *
Professor

Hering, Thomas M.
Instructor

Hoskin, Francis C. G.
Professor

Inerot, Annica L.
Instructor

Inerot, Sven E.
Instructor

Kachmar, John F.
Emeritus

Kimura, James H. *
Assoc. Professor

Knudson, Cheryl *
Asst. Professor

Knudson, Warren *
Asst. Professor

Kornel, Ludwig *
Professor

Kuettner, Klaus E. *
Professor
Chair.

Lange, Yvonne *
Professor

Lenz, Mary Ellen
Instructor

Lobstein, Otto E.
Assoc. Professor

Matijevitch, Branislav
Instructor

Mattenheimer, Hermann *
Professor

Miller-Catchpole, R.
Assoc. Chair.

Miller-Catchpole, R.
Asst. Professor

Morley, Colin *
Assoc. Professor

Muller, Norbert
Instructor

Rafelson Jr, Max E. *
Professor

Raiss, Ruth Xenia *
Saito, Seiji

Saito, Seiji
Instructor

Sandell, Linda *
Asst. Professor

Sawhney, Rajinder S. *
Asst. Professor

Schmid, Thomas M. *
Asst. Professor

Schnebli, Hans P.
Visit. Assoc. Professor

Schwartz, David E.
Asst. Professor

Shinomura, Tamayuki
Instructor

Singh, Ashok
Asst. Professor

Sky Peck, Howard H. *
Professor

Snopko, Rose Marie
Instructor

Subbaiah, Papasani V. *
Assoc. Professor

Thonar, Eugene *
Assoc. Professor

Wang, Christina Y..
Instructor

Weinstock, Albert *
Asst. Professor

Whisler, Kenneth E. *
Asst. Professor

Whisler, Walter
Professor

Zaneveld, Lourens *
Professor

CARDIO- VASCULAR- THORACIC SURGERY

Andersen, James H.
Assistant

Catinella, Frank Peter
Instructor

Dabir, Reza
Instructor

Davalle, Michael J.
Asst. Professor

Davis, Zev
Instructor

De Laria, Giacomo
Asst. Professor

DeLeon, Serafin
Lecturer

Dye Jr, William S.
Emeritus

Faber, L. Penfield
Professor

Garibaldi, Abel
Instructor

Goldin, Marshall D.
Assoc. Professor

Grcevich, George J.
Assistant

Guillory, Joel
Instructor

Hoeksema, Tammo
Instructor

Hunter, James A.
Professor

Ilbawi, Michel N.
Lecturer

Javid, Hushang
Professor

Jensik, Robert J.
Professor

Julian, Ormand C.
Emeritus

King, Jerry N.
Asst. Professor

Kittle, C Frederick
Professor

Kucich, Vincent
Instructor

Milloy, Frank J.
Assoc. Professor

Monson, David O.
Asst. Professor

Najafi, Hassan
Professor

Oldfield, R Charles
Asst. Professor

Piccione, William
Instructor

Roberts, Jack C.
Asst. Professor

Serry, Cyrus
Assoc. Professor

Spinazzola, Angelo J.
Asst. Professor

Tedesco, Dominic
Instructor

Tyner, John J.
Instructor

Warren, William H.
Asst. Professor

Washburn, Thomas B.
Instructor

Weinberg Jr, Milton
Professor

CLINICAL NUTRITION

Atkins, Martha F.
Instructor

Aye, Pamela L.
Lecturer

Barry, Diana
Instructor

Betz, Eleanor
Instructor

Bezkorovainy, Anatoly
Assoc. Professor

Cockram, David B.
Lecturer

Cotner, Carol Lou
Instructor

Dowling, Rebecca A.
Asst. Professor
Chair.

Fishman, Joan A.
Instructor

Gumbel, Mary K.
Lecturer

Hassel, Maria
Associate

Hoyt, Jeanette
Instructor

Kanter, Mitchell M.
Visit. Asst. Professor

Lafferty, Linda
Asst. Professor

Leece, Deborah P.
Lecturer

Mullen, Mary C.
Lecturer

Pinney, E Virginia
Asst. Professor

Pool, Ellis A.
Instructor

Pruss, Charlotte
Asst. Professor

Rezabek, Karen
Instructor

Rockway, Susie W.
Asst. Professor

Shield, Jo Ellen
Lecturer

Sowa, Diane
Instructor

Storlie, Jean
Instructor

Tangney, Christine
Asst. Professor

Taylor, Kathleen M.
Instructor

Wagner, Sally M.
Instructor

**COMMUNICATION
DISORDERS
& SCIENCES**

Allan, Joan
Instructor

Bacon, Mary
Assoc. Professor

Baumgartner, John M.
Asst. Professor

Berlow, Susan J
Associate

Brandt-guckes, Deborah
Instructor

Butcher, Jaynee
Asst. Professor

Connelly, Robert
Associate

Cook, Barbara S.
Associate

Gudmundsen, Gail
Associate

Guyette, Thomas W.
Asst. Professor

Hill, David
Associate

Hill, Linda C.
Associate

Jensen, Thomas
Asst. Professor

Klodd, David A.
Assoc. Professor

Klor, Barry M
Associate

Kominsky, Perrie
Associate

Linkenheld, Deborah A.
Instructor

Melnick, Carol R
Associate

Milianti, Franklin
Associate

Micoch, Anthony G
Associate

Montgomery, Lynne D
Instructor

Morreale, Carol L
Instructor

Peterson, Phyllis
Instructor

Schewitz, Sheila
Assoc. Professor

Winkels, Kathy
Associate

Wolinsky, Steven
Associate

Young, Carolyn V
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COMMUNITY HEALTH NURSING

Anjaria, Barbara
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Appleyard, Joann
Instructor

Barhyte, Diana Young
Assoc. Professor

Biere, Donna Mae
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Christiansen, Kathryn
Asst. Professor
Assoc. Chair.

Counte, Michael
Assoc. Professor

Crane, Marianna L
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Cukr, Penelope
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Cutillo, Heather
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Daly-gawenda, Debra A
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Davis, Judy
Instructor

Dishno, Judy
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Fondiller, Shirley H
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Freed, Gina
Instructor

Fruh, Sharon
Instructor

Grace, Dianne
Instructor

Huna-calandra, Marcia
Instructor

Johnson, Mary T.
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Kunst, Ann E.
Instructor

Maragos, Mary E.
Instructor

Miller, Nancy J.
Instructor

Muchow, Elizabeth
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Nelson, Linda L.
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Ninan, Mary
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Padonu, Georgia
Assoc. Professor
Chair.

Pastorello, Diane
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Pender, Nola
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Perry, Kathleen
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Sapala, Shirley
Asst. Professor

Shannon, Iris
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Tatem, Edjuana J.
Asst. Professor

Ulsafer-Vanlanen, Jane
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Wildblood, Ann R.
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DERMATOLOGY

Bielinski, Kenneth B.
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Bielinski, Stefan
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Blankenship, Marshall
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Levitt, Leonard

Asst. Professor

Malkinson, Frederick

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Rostenberg Jr, Adolph

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Smith, Edwin M.

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Spinka, Harold M.

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Stockton, Donna L.

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Strohl, Lee H.

Asst. Professor

Szymanski, Frederick J.

Emeritus

Wyhinny, Patricia

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Alcorn, Franklin

Professor

Ali, Amjad

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Birmholz, Jason C.

Professor

Bogdonoff, Maurice L.

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Buenger, Richard E.

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Crosby, Daniel L.

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Epstein, Avrum J.

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Fruin, Mark E.

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Gardiner, Richard

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Greenfield, George B.

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	Hotch, Deborah Asst. Professor		Nelson, Glenn E. Asst. Professor

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Dwan, Francis Associate	Gold, Henry O. Associate	Kaymakcalan, Orhan Instructor	Mc Donald, Gerald Visit. Asst. Professor
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Figueroa, Alvaro Instructor	Hayes, Mary J. Instructor	Kolb, Leonard H. Emeritus	Nasralla, Craig A. Assistant
Fine, Richard E. Assistant	Herwick, Paul Q. Instructor	Kunz, Peter F. Instructor	Nasralla, Nahim H. Asst. Professor
Fingerhut, Morton H. Asst. Professor	Hodoval, Randall J. Instructor	Larsen, Erik Assoc. Professor	Nathan, John E. Visit. Asst. Professor
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		Lowell, Douglas G. Instructor	Paskill, Joseph W. Instructor

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Patel, J. M.
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Ponce De Leon, Roland
Asst. Professor

Ponglorpisit, Suporn
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Prince, Clifford
Instructor

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Radhakrishnan, Jayant
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Sanborn, Earl Boyce
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Asst. Professor

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Instructor

Ferguson, Karen
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Instructor

Kubak, Bernard Michael
Instructor

Kwan, Sau-Ping *
Asst. Professor

Landau, William *
Assoc. Professor

Landay, Alan *
Asst. Professor

Levin, Stuart
Assoc. Professor

Lewis, Edmund J. *
Assoc. Professor

Lint, Thomas F. *
Assoc. Professor

Luskin, Allan T. *
Assoc. Professor

Merkel, Frederick K.
Assoc. Professor

Ogston, Charles W. *
Asst. Professor

Patterson, Robert
Instructor

Patwardhan, Satish
Instructor

Peeples, Mark E. *
Asst. Professor

Plate, Janet *
Assoc. Professor

Potempa, Lawrence A. *
Asst. Professor

Pottage Jr., John
Asst. Professor

Raghu, Ganapathirama
Instructor

Richmond, G. Wendell *
Asst. Professor

Sassetti, Richard J.
Asst. Professor

Schechter, Esther M. *
Instructor

Schuytema, Eunice E.
Emeritus

Siegel, Joan *
Asst. Professor

Sterner, Frank J.
Instructor

Tarzynski-Potempa, R.
Instructor

Thomas, Larry L. *
Assoc. Professor

Umeki, Yasuhiro
Instructor

Venkataraman, Munusamy *
Asst. Professor

Welsh, Thomas J.
Asst. Professor

Zeitz, Howard J. *
Assoc. Professor

Zeller, Janice M. *
Asst. Professor

INTERNAL MEDICINE

Abella, Dennis C.
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Abramowitz, Bruce
Asst. Professor

Abrams, Richard I.
Assistant

Adelman, Scott H.
Assistant

Adler, Solomon
Assoc. Professor

Adler, Yolanda T.
Asst. Professor

Aggarwal, Keshav
Asst. Professor

Agruss, Neil
Asst. Professor

Ahmed, Mohammad
Asst. Professor

Ahmed, Ziauddin
Instructor

Akre, Osmund H.
Emeritus

Alavi, Iltifat A.
Asst. Professor

Alavi, Nahid
Instructor

Aleman, Marco A.
Assistant

Aliaga, Jorge
Instructor

Amsler, Barbara E.
Assistant

Anagnos, John
Associate

Anderson, Kenning M.
Asst. Professor

Andina, Robert J.
Instructor

Angarita, Luis
Instructor

Armbruster, Kent
Instructor

Arndt, Thomas R.
Instructor

Aruguete, Christine M.
Instructor

Aruguete, Jose
Instructor

Ashbach, David L.
Associate

Ashenhurst, Julia B.
Asst. Professor

Backer, Barbara
Instructor

Bacus, James
Professor

Bagdade, John
Asst. Professor

Bajaj, Vijay
Instructor

Balandrin, Jorge E.
Instructor

Baldinger, Michael
Instructor

Baldwin, David
Asst. Professor

Balk, Robert A.
Asst. Professor

Balkoura, Maria H.
Asst. Professor

Barnes, Louis J.
Asst. Professor

Baron, Anthony
Assistant

Baron, John W.
Asst. Professor

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Barron, John T. Assistant	Bone, Roger C. Professor	Carlson, Lawrence D. Instructor	Collins, James J. Instructor
Bartels, Stephanie A. Instructor	Bonomi, Philip D. Chair	Carton, Robert Emeritus	Combs, Stanley L. Instructor
Barton, Evan M. Professor	Boyajian, Charles Instructor	Case, John P. Assistant	Comrie, James M. Asst. Professor
Basile, Deborah A. Instructor	Boyd, Cynthia E. Instructor	Casey, Donald E. Asst. Professor	Conlon, Kevin Instructor
Becker, Frank O. Assoc. Professor	Brar, Balbir S. Instructor	Casey, Larry C. Asst. Professor	Cruz, Sidney R. Associate
Belanger, Michael G. Instructor	Braun, Donald Assoc. Professor	Castaneda, Jorge Instructor	Cuadros, Hugo F. Asst. Professor
Bell, Peter Instructor	Bregman, Andrew Instructor	Casty, Frank E. Assistant	Dampier, Mary F. Asst. Professor
Benson, Constance Asst. Professor	Breth, George Asst. Professor	Catellani, Constance Asst. Professor	Danko, Henry Asst. Professor
Berger, Barry W. Instructor	Breuhaus, Herbert C. Emeritus	Cavanaugh, Stephanie Asst. Professor	Dauphin, Margaret Instructor
Berkelhammer, Charles Instructor	Brill, John H. Assistant	Cella, David F. Asst. Professor	Davidson, Michael H. Asst. Professor
Bernfield, Jeffrey Assistant	Bristow, Walter J. Assistant	Chandra, Govind Instructor	Davila, Fidel Asst. Professor
Berroya, Asuncion C. Instructor	Brown Jr, Calvin R. Asst. Professor	Chase, Robert A. Instructor	Davis, Andrew M. Asst. Professor
Bice, Michael K. Asst. Professor	Brown, Marie T. Asst. Professor	Chavarria, Arturo Instructor	De Jong, George Asst. Professor
Bicknese, Donna Assistant	Brown, R Gordon Emeritus	Chhablani, Ramesh Asst. Professor	De Rose, William F. Asst. Professor
Bidani, Anil Assoc. Professor	Brown, William C. Asst. Professor	Christen, Charles Instructor	De Silva, Parakrama Instructor
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Blaauw, Bernard B. Asst. Professor	Buder, Alex Instructor	Clark, James G. Asst. Professor	Debre, Michael W. Instructor
Bleck, Thomas P. Asst. Professor	Bulmash, Jack Martin Asst. Professor	Clarke, Jan Andree Asst. Professor	Dehaan, Michael R. Assistant
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Bloom, Irving Instructor	Butler, Paula R. Instructor	Cohen, Gerald Associate	Denes, Pablo Professor
Blumberg, Martin B. Associate	Camac, Joyce M. Assistant	Colandrea, Michael A. Asst. Professor	Dennison, Daniel P. Assistant
Bogdonoff, Maurice L. Professor	Camara, Daniel S. Assoc. Professor	Cole, David R. Assoc. Professor	Devetski, Robert Visit. Professor
Bohan, John Lynch Asst. Professor	Campbell, David R. Instructor	Cole, Edmond Asst. Professor	Di Filippo, Mary E. Instructor
Bolton, Cornelius F. Asst. Professor			Di Filippo, Nicholas Instructor

Diamond, Paul H. Asst. Professor	Fejes, Jolan Instructor	Galt, Raymond M. Asst. Professor	Granberry, Katherine C. Instructor
Diamond, Peter S. Instructor	Felix, Robert E. Asst. Professor	Garbin, Gregory S. Assistant	Greenberger, Mark A. Assistant
Dietz, Mark A. Assistant	Felsenthal, Susan Instructor	Garcelon, Ann Instructor	Gregory, Stephanie A. Professor
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Domont, Lawrence A. Asst. Professor	Fischer, Conrad S. Asst. Professor	Gasteyer, Theodore Asst. Professor	Grimm, Michael F. Assistant
Dorman, Robert J. Instructor	Fisher, Raymond L. Instructor	Gawlik, Gerald M. Instructor	Grinblatt, David L. Assistant
Doshi, Mayank Y. Instructor	Flanagan, Thomas Instructor	Gdalmán, Louis Emeritus	Grotelueschen, C. Instructor
Dourdourekas, Demetrio Associate	Fleagle, Jane A. Assistant	Geringer, Charles E. Instructor	Gupta, Brahma N. Instructor
Dowling, Harry F. Emeritus	Fliegelman, Robert Instructor	Germino, Wilford Instructor	Gurevich, Boris Instructor
Dozier, Emanuel V. Instructor	Forbes, Janet Y. Instructor	Gerstad, Nancy Anne Asst. Professor	Hahn, Jerome J. Assoc. Professor
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Dunlop, John T. Instructor	Fox, Jacob H. Asst. Professor	Gill, Santosh K. Instructor	Hamburger, Ronald Instructor
Dwarakanathan, Arcot A. Asst. Professor	Frank, Judith Ellen Assistant	Gill, Sukhjit Asst. Professor	Hanashiro, Paul Assoc. Professor
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Ellison, Maceo Asst. Professor	Freedman, Philip Professor	Goldberg, Gary Instructor	Harris, Max L. Instructor
Erlenborn, James Instructor	Fried, Walter Professor	Golden, Harvey E. Assoc. Professor	Harris, Steven Assistant
Eybel, Carl E Asst. Professor	Frischer, Henri Professor	Goldstein, Maurice S. Professor	Harris, Thomas V. Instructor
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Hoepfner, Walter F. Emeritus	Jones, Jerry Lynne Instructor	Khan, Saeed Asst. Professor	Kuyzin, Lanis L. Instructor
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Honasoge, Ananth Instructor	Kaganiec, Irene G. Assoc. Professor	King, Joseph C. Asst. Professor	La Marre, Arthur G. Instructor
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Husseini, Salah G. Asst. Professor	Kang, Bann Assoc. Professor	Klinger, Alfred D. Associate	Lang, Gordon Asst. Professor
	Kaplan, Raymond L. Asst. Professor		Lantz, David A. Instructor

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Layfer, Lawrence Asst. Professor	Lubell, David L. Assoc. Professor	Mattis, Richard C. Asst. Professor	Moneer, Yusuf Asst. Professor
Lee, Russell M. Instructor	Lucero, Roger A. Instructor	Mayer, Robert S. Assistant	Moon, Byong H. Asst. Professor
Leist, Michael Asst. Professor	Luger, Gerald Instructor	Mc Cormick, Alice Instructor	Moore, Kenneth L. Instructor
Lepper, Mark H. Emeritus	Luskin, Allan T. Assoc. Professor	Mc Cormick, Patrick J. Instructor	Moore, Wm. Aubrey Asst. Professor
Lerner, Guy M Assistant	Mac Leod, Catherine M. Asst. Professor	Mc Creary, Patricia A. Assoc. Professor	Morris, Arthur M. Instructor
Leslie, William T. Asst. Professor	Madden, Thomas Asst. Professor	Mc Ginnis, Patrick L. Instructor	Morris, Gerald D. Instructor
Lev, Maurice Disting. Professor	Madhav, Gopal Instructor	Mc Kenna, Rajalaxmi Assoc. Professor	Mozwecz, Jeffery Instructor
Levin, Joel M. Asst. Professor	Magana, Lilliam C. Instructor	Mc Kenna, William W. Asst. Professor	Muehrcke, Allan O. Instructor
Levin, Mark H. Instructor	Mahon, Gerald M. Assistant	Mc Laughlin, Margaret Asst. Professor	Muehrcke, Robert C. Professor
Levin, Robert D. Asst. Professor	Maihotra, Madhu Instructor	Mc Leish, William Assistant	Mueller, Rudolph J. Asst. Professor
Levin, Stuart Professor	Malik, Khadija Instructor	Mc Leod, Bruce C. Assoc. Professor	Mularczyk, Joseph Instructor
Levine, Charlotte C. Instructor	Mannina, Anthony J. Assistant	Mc Millan, J. Charles Emeritus	Mulligan, Kathryn Instructor
Levine, Milton D. Assoc. Professor	Marbach, Walter J. Instructor	Mc Rae Jr., Roy Assistant	Murphy, Patrick B. Assistant
Levitan, Ruven Professor	Margules, Kenneth R. Instructor	Medenis, Vidvuds Asst. Professor	Muthuswamy, Petham Asst. Professor
Levy, Richard A. Asst. Professor	Marinelli, Antony Asst. Professor	Meisles, Lynn Deutsch Assistant	Mutterperl, Robert E. Instructor
Lewis, Bruce E. Assistant	Markey, William S. Asst. Professor	Meredith, Paul A. Emeritus	Nagaraju, Ramalingappa Instructor
Lewis, Edmund J. Professor	Markovitz, David Instructor	Merkel, Frederick K. Assoc. Professor	Narcelles-Mon, Leilani Instructor
Lewison, Gary R. Instructor	Marks, Helen M. Assistant	Merwick, Patricia A. Asst. Professor	Nash, Stephen D. Assistant
Liebson, Philip R. Professor	Martin, John E. Assoc. Professor	Messer, Joseph V. Professor	Neal, Richard H. Assoc. Professor
Light, Amy Assistant	Martin, Michael Instructor	Meyer, John E. Instructor	Neguina, Noel D. Associate
Lim, Toh Hoai Instructor	Martinez, Charles J. Asst. Professor	Meyer, John H. Associate	Neill, William A. Professor
Lindenberger, Martin S. Instructor	Marwah, Birinder S. Instructor	Meyer, William N. Instructor	Nelson, Bertram Professor
Link, Brian K. Assistant	Mason, Teresa J. Asst. Professor		Nelson, Jeffre A. Assistant

Neri Jr., Gilberto S. Asst. Professor	Payne, John A. Assoc. Professor	Puray, Milagros D. Asst. Professor	Richmond, G. Wendell Asst. Professor
Newman, Julius S. Asst. Professor	Perez, Andrew A. Instructor	Qazi, Masood A. Instructor	Ries, Michael Asst. Professor
Nicholas, W. John Assistant	Peterson, Arthur R. Associate	Rae, Carolyn F. Instructor	Riff, Donald P. Asst. Professor
Nickelson, Kim R. Instructor	Petrak, Richard A. Assistant	Rahn, Ada Instructor	Roberg, Norman B. Emeritus
Nolan, A. Clark Asst. Professor	Petrak, Russell M. Asst. Professor	Raines, Dale S. Assoc. Professor	Rodby, Roger Assistant
Northrop, Greta Jo Assoc. Professor	Petropoulos, A. Tom Instructor	Raines, Robert A. Instructor	Rogers, Cornelius A. Instructor
Novotny, Nancy R. Instructor	Phelan, John M. Assistant	Rajan, Padmini Instructor	Rorig, James C. Asst. Professor
O'Brien, Donald E. Emeritus	Phelan, William H. Assoc. Professor	Ramakrishna, B. Instructor	Rosen, Robert L. Assoc. Professor
O'Brien, John F. Asst. Professor	Pierce-Rhoads, Mila I. Disting. Professor	Ramsey, Michael M. Assoc. Professor	Rosenberg, Alan S. Instructor
O'Donoghue, J. Kevin Asst. Professor	Pierson III, Raymond H. Instructor	Range, Charles L. Assoc. Professor	Rosenberg, Marvin S. Assoc. Professor
Odland, Blair Instructor	Pineless, Gary R. Assistant	Rao, Vijaykumar M. Asst. Professor	Rosenberg, Neil Instructor
Olson, Bruce A. Asst. Professor	Plate, Charles A. Visit. Professor	Ray, Sharrie A. Assistant	Rosenblate, Howard Asst. Professor
Orlowski, Janis M. Instructor	Plate, Janet Assoc. Professor	Raymond, Michael K. Instructor	Rosenblum, Joseph Instructor
Otterson, Gregory A. Assistant	Plotnick, Bennett H. Instructor	Razma, Antanas G. Instructor	Rosenbush, Stuart Asst. Professor
Palmer, Scott B. Assistant	Pobanz, Donovan M. Associate	Reed, Byron Instructor	Roskelley, Rigby C. Emeritus
Panitch, Silvia Z.V. Instructor	Polychronopoulos, Sote Instructor	Reed, William R. Instructor	Rosman, Joseph K. Asst. Professor
Papernik, Morris Instructor	Pomerantz, Rhoda S. Assoc. Professor	Reese, Thomas C. Instructor	Rossof, Arthur H. Assoc. Professor
Parsons, Robert Visit. Asst. Professor	Ponsiglione, John D. Asst. Professor	Regal, Edward M. Asst. Professor	Rotenberg, Morrey L. Instructor
Passen, Edward L. Assistant	Popper, Michael S. Asst. Professor	Reid, Robert H. Asst. Professor	Roth, Judith A. Assistant
Passovoy, Robert D. Asst. Professor	Port, Jeffrey H. Instructor	Reiter, Mark Instructor	Roy, Shirley A. Asst. Professor
Patel, Jagdish R. Instructor	Potempa, Kathleen Asst. Professor	Rennie, I. Drummond Professor	Rubin, David B. Asst. Professor
Paul, Stephen Assistant	Pottage Jr., John Asst. Professor	Reynolds, Albert Instructor	Rubin, Diane Linda Instructor
Paul, Tarak N. Instructor	Prabhu, Mukund M. Assistant	Rezak, Michael Assistant	Ruggie, Neal T. Asst. Professor
Pavlovic, Thomas Associate	Priest, Edwin R. Assistant	Richman, Carol M. Assoc. Professor	Russe, Henry P. Professor
	Principe, John Assistant		Russell, Hugh D. Instructor

Rutkowski, Michael D. Assistant	Scupham, William K. Asst. Professor	Singh, Ashok Asst. Professor	Stein, Peter M. Assistant
Ryan, Will G. Professor	Secemsky, Solomon Instructor	Sipkins, James H. Instructor	Stein, Robert N. Asst. Professor
Saavedra, Richard A. Assoc. Professor	Segreti, John Asst. Professor	Sittler, Stephen S. Asst. Professor	Steinecker, Gary A. Asst. Professor
Sabesin, Seymour Professor	Semel, Jeffrey D. Asst. Professor	Skuba, Thomas D. Instructor	Steinecker, Patricia H. Asst. Professor
Salzman, Gary H. Asst. Professor	Sha, Beverly E. Assistant	Skul, Vesna Instructor	Steinhauser, Janice R. Instructor
Samuels, Lawrence J. Assistant	Shah, Jagdish R. Instructor	Slodki, Sheldon Assoc. Professor	Stemer, Alexander A. Asst. Professor
Santucci, Barbara Asst. Professor	Shah, Mahendra M. Instructor	Smith, Daniel J. Instructor	Stine, Terry M. Assistant
Sarpolis, Keith Instructor	Shallat, Charles H. Asst. Professor	Smith, Earl C. Assoc. Professor	Stokar, Elliot Instructor
Sassetti, Richard J. Assoc. Professor	Sharma, Rajesh Asst. Professor	Smith, Stephen M. Assistant	Strauss, Lynn M. Instructor
Schaffner, John A. Asst. Professor	Sharon, Pinhas Assistant	Snapp, Marshall Associate	Subbaiah, Papasani V. Assoc. Professor
Scheetz, Annette A. Instructor	Sheridan, Patrick Instructor	Snell, R. Jeffrey Assistant	Subramani, Govindaraju Instructor
Schick, Armin F. Emeritus	Shewmake, Floyd Associate	Sobin, W. Harley Instructor	Sullivan, Daniel P. Assistant
Schick, Vernon F. Emeritus	Shicker, Louis Assistant	Sokalski, Steven J. Visit. Asst. Professor	Sunbulli, Talal Instructor
Schieber, Scott R. Instructor	Short, Ronald M. Assistant	Sokol, Norton M. Asst. Professor	Susmano, Armando Assoc. Professor
Schlesinger, Marc L. Instructor	Showel, John L. Assoc. Professor	Solliday, Norman H. Instructor	Szeto, Caroline Instructor
Schmidt, Paul J. Assistant	Shroff, Subodh S. Instructor	Somberg, Alvin Asst. Professor	Szidon, J. Peter Professor
Schnitzer, Thomas J. Professor	Siegfried, J. David Instructor	Spear, Joel B. Assistant	Taber, Mark D. Instructor
Schoenberger, James A. Professor	Siglin, Martin G. Asst. Professor	Staats, David O. Asst. Professor	Tarun, Donald Emeritus
Schraufnagel, Mary N. Instructor	Silins, V Raymond Asst. Professor	Stabell, Kristen M. Assistant	Tarzynski-Potempa, R. Instructor
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Schuette, Patrick T. Asst. Professor	Simon, David Assistant	Stamler, Jeremiah Visit. Professor	Tatum, Vaughn Instructor
Schwartz, Douglas B. Asst. Professor	Simon, Gerald J. Instructor	Stanley, Robert E. Instructor	Tausk, Kasriel Assoc. Professor
Schwartz, Maurice A. Assoc. Professor	Simon, Laura Instructor	Stavinga, Ronald F. Asst. Professor	Taylor III, Samuel G. Emeritus
Schwartz, Theodore B. Emeritus	Simpson, Steven Q. Assistant	Stavrakos, Charalambos Instructor	Taylor IV, Samuel G. Assoc. Professor
Schwartzman, William A. Instructor		Stavrakos, Patty P. Instructor	Taylor, Prentiss Asst. Professor

Thompson, Ray E.
Asst. Professor

Thomson, Andrew
Assoc. Professor

Thomson, Cameron
Instructor

Thonar, Eugene
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Toh, Ban Teong
Assistant

Toman, Maralyn E.
Instructor

Tomayko, John F.
Assistant

Trenholme, Gordon M.
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Trubitt, Mitchell J.
Asst. Professor

Trusewych, Timothy B.
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Tucker, W. Randolph
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Twiss, Alston C.
Emeritus

Tyszka, Thomas S.
Asst. Professor

Uretz, Eugene F.
Asst. Professor

Van Valen, Phebe
Lecturer

Vanderlaan, Burton F.
Instructor

Venkataraman, Munusamy
Instructor

Veres-Thorner, C.
Asst. Professor

Vidinli, Mustafa
Instructor

Vollmer, Kelly Lynn
Assistant

Walraven, Ellen S.
Instructor

Walsh, Patricia A.
Instructor

Wang, Benjamin J.
Asst. Professor

Warren, Gregory V.
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Waskin, Hetty Anne
Instructor

Weaver, Denise Cecile
Assistant

Weidman, Stuart W.
Professor

Weinstein, Karen B.
Instructor

Weller, Herschel
Instructor

Westerman, Maxwell P.
Professor

Wides, Kathleen E.
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Wilcox, Kenneth
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Williams, Barbara L.
Assistant

Williams, Jack
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Williamson, Wayne C.
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Wing, Herman
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Winter, Paul L.
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Winterfield Jr., Roland
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Wolfe, Caroline M.
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Wolfe, Charles K.
Assoc. Professor

Wolter, Janet
Professor

Wong, Paul W.
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Wong, Sansan
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Wurtz, Rebecca
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Yadava, Ved Prakash
Asst. Professor

Yasoff, William A.
Instructor

Yellen, Harry J.
Asst. Professor

Yellen, Steven F.
Instructor

Yisak, Solomon
Instructor

Yokley, Sharon
Instructor

Zahtz, Merrill
Instructor

Zallik, Ned I.
Instructor

Zeitz, Howard J.
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Zelinger, Allan B.
Instructor

Ziarko Jr., Mitchell
Instructor

Zoldan, Jack
Instructor

MEDICAL NURSING

Ambutas, Shirley
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Andejas, Jean M.
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Batty, Karen N.
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Bines, Ann S.
Instructor

Blesch, Karen Smith
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Braun, Lynne
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Curgian, Linda M.
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D'Arco, Sharon
Instructor

Danaher, Eileen
Instructor

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Delgado, Janet M.
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Chair.

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Fisli, Barbara Anne
Instructor

Flood, Suzanne
Instructor

Fruth, Roberta
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Glantz, Gale
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Gobel, Barbara
Instructor

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Gulanick, Mary Ellen
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Hawrysis, Andrea
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Haynes-Lief, Dolores
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Holstein, Beth L.
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Jassak, Patricia
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Johnson, Barbara Jo
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Kaiser, June
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Keenan, Ann Marie
Instructor

Kincaid-Davis, Phyllis
Instructor

King, Maureen A.
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Lach, Rose M.
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Lake, Marien L.
Instructor

Larson, Ruth S.
Instructor

Lavalle, Sue
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Levin, Sandra
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Mc Hale, Marnie
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Michalski, Elizabeth
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Milburn, Carol
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Minton, Paula
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Monico, Linda
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Owens-Jones, Sandra
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Pencak, Marcia
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Asst. Professor

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Ebenhoeh, Patrick E. Asst. Professor	Hanni, John W. Professor	Mangoubi, Elie Instructor	Rattan, Pradeep Instructor
Edwards, John H. Visit. Asst. Professor	Harris, Charles R. Instructor	Martinazzo-Dunn, Anna Instructor	Reddy, Agara S. Assistant
Epstein, Phillip S. Asst. Professor	Hartman, Edith Instructor	Maxwell, Sarz Assistant	Reifman, Robert A. Asst. Professor
Ericksen, Stephen E. Asst. Professor	Hendler, Samuel Asst. Professor	Mc Neil, David L. Assistant	Reinstein, Michael J. Asst. Professor
Fanelli, Joseph G. Assistant	Holemon, Lance D. Assistant	Meehan, Marjorie C. Emeritus	Ripeckyj, Andrew Asst. Professor
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Feldmann, Theodore B. Instructor	Hovde, Christian A. Asst. Professor	Mershon, Steven Asst. Professor	Rosenthal, Maurice J. Asst. Professor
Fink, Peter Asst. Professor	Ivanoff, Jeffrey A. Asst. Professor	Miller, Raymond N. Associate	Rosenthal, Ruth Beth Instructor
Finkelstein, Adrian Asst. Professor	Jaffe, Charles M. Asst. Professor	Mokros, Hartmut B. Instructor	Sabelli, Hector C. Assoc. Professor
Freeman, Linda N. Asst. Professor	Jiron, Arnoldo J. Asst. Professor	Moolayil, Kumar D. Instructor	Samelson, Charles F. Asst. Professor
Garvin, John S. Professor	Johnson, Bruce C. Instructor	Morrison, David Asst. Professor	Sanchez, Jose Ramon Asst. Professor
Gerty, Francis J. Emeritus	Jones, Frank A. D. Asst. Professor	Nuzzarello, Angela Assistant	Schaff, Mary Ruth Instructor
Gierl, Benedict L. Asst. Professor	Kaegi, Charles E. Instructor	O'Donnell, John W. Associate	Scheftner, William A. Asst. Professor
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Gokhale, Sudhir M. Instructor	Kelly, Jonathan Asst. Professor	Ostrov, Eric Asst. Professor	Schwarz, Marvin Asst. Professor
Golchini Shafa, Mehdi Associate	Klein, Louis D. Instructor	Patel, Minaldevi Asst. Professor	Shvartsman, Leonid Instructor
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Goodfriend, Marlene S. Asst. Professor	Kraines, Samuel H. Emeritus	Pecen, Nancy E. Instructor	Smith, Garth D. Asst. Professor
Grossman, Linda S. Asst. Professor	Kravitz, Howard Asst. Professor	Perkins, George L. Emeritus	Sokhey, B. J. Associate
Guise, Gracia Asst. Professor	Lane, Harold J. Instructor	Pieper, William J. Asst. Professor	Sommerfeldt, Lorraine Instructor
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Ha, Yong Soo Instructor	Levitt, Leroy Professor	Poznanski, Elva Professor	Stampley, Jan O. Instructor
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Westheimer, Ruth
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Chair

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Cheifetz, David I. *
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Christman, Luther
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Padonu, Georgia
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Zitter, Robert E.
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RELIGION & HEALTH

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Fitchett, George
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Hovde, Christian A.
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Temming, M. Carole
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Coleman, Fay K.
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Conterato, Dean

Assistant

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Galinsky, Dennis L.

Asst. Professor

Griem, Katherine L.

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Groch, Mark W.

Assoc. Professor

Hanson, Wayne R.

Assoc. Professor

Hartsell, William

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Hendrickson, Frank R.

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Chair.

Huang, Jeng-shyuaan

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Jette, David

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Kang, Shaw-dyi

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Kao, Mark

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Kramer, Toby

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Lanzl, Lawrence H.

Professor

Lee, Ham Nyung

Asst. Professor

Lee, Myung-sook

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Liu, Shin S.

Asst. Professor

Murthy, Anantha K.

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Phillips, Alexander K.

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Phillips, Richard L.

Visit. Assoc. Professor

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Assistant

Recine, Diane C.

Assistant

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Rozenfeld, Martin

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Sabbas, Albert M.

Asst. Professor

Sarin, Pramilla

Asst. Professor

Saxena, Virenda S.

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Sharma, Madhu M.

Assistant

Starr, Stuart J.

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Stefani, Stefano S.

Professor

Urbon, John

Asst. Professor

UROLOGY

Baumgartner, George C.

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Bormes, Thomas P.

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Callahan, Daniel H.

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Mc Kiel Jr., Charles

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Papierniak, Frank B.

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Sadoughi, Nader

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Slocum, Peter A.

Instructor

Sosenko, George R.

Instructor

Spellberg, David Mark

Assistant



Alphabetical List

The following list include self-reported data on the highest degree, and university conferring that degree, plus the department(s) in which the faculty member has an appointment and, if applicable, network hospital affiliation.

Abbreviations for Network Hospital Affiliation

(no abbreviation indicates Rush-Presbyterian-St. Luke's Medical Center)

BETH	Bethany Hospital	MJ	Marionjoy Reehabilitation Center
CDH	Central DuPage Hospital	MLSQ	Mile Square Health Center, Inc.
CH	Christ Hospital	MTSN	Mt. Sinai Hospital Medical Center
COPL	Copley Memorial Hospital	RNS	Rush North Shore Medical Center
GBUR	Galesburg Cottage Hospital	SMAR	St. Mary's Hospital
GRNT	Grant Hospital of Chicago	SWED	Swedish Covenanat Hospital
LMCH	LaGrange Memorial General Hospital	WSUB	West Suburban Hospital Medical Center
MAC	Mac Neal Memorial Hospital		

Abbreviations used for Academic Degrees

A.B.; B.A.	Bachelor of Arts
B.D.	Bachelor of Divinity
B.S.	Bachelor of Science
D.A.	Doctor of Arts
D.D.	Doctor of Divinity
D. Min.	Doctor of Ministry
D.D.S.	Doctor of Dental Surgery
D.N.S.	Doctor of Nursing Science
D.O.	Doctor of Osteopathy
Dr. P.H.	Doctor of Public Health
D.S.N.	Doctor of Science in Nursing
D.V.M.	Doctor of Veterinary Medicine
Ed.D.	Doctor of Education
J.D.; L.L.B.	Doctor of Laws
M.A.	Master of Arts
M.B.A.	Master of Business Administration
M.B., Ch.	Bachelor of Medicine/Bachelor of Chirurgy
M.B.B.S.	Bachelor of Medicine/Bachelor of Surgery
M.C.D.	Master of communicative Disorders
M.D.	Doctor of Medicine
M.H.A.; M.H.S.A.	Master of Hospital Administration
M.M.	Master of Management
M.N.	Master of Nursing
M.O.T.	Master of Occupational Therapy
M.P.H.E.	Master of Public Health education
M.S.	Master of Science
M.S.Ed.	Master of Science in Education
M.S.I.E.	Master of Science in Industrial Engineering
M.S.N.	Master of Science in Nursing
M.S.W.	Master of Science in Social Work
Pharm. D.	Doctor of Pharmacy
Ph.D.	Doctor of Philosophy
Psy.D.	Doctor of Psychology
Th.M.	Master of Theology

Note:

- Lowell Technological Inst. is now the U. of Lowell
- Chicago-Kent College of Law Merged with I.I.T. in 1969
- Chicago Med. Sch. is now the U. of H.S./Chicago Med. School
- Rush Med. Col. degrees were conferred by The U. of Chicago through 1942
- Sch. of Med. of Marquette U. is now Med. Col. of Wisc.
- M.D. degrees conferred by the U. of I. were conferred by the U. of I. at Urbana until 1973; by the U. of I. at the Med. Ctr. until September 1982; by the U. of I. Chicago thereafter
- Jefferson Med. Col. of Phila. is now part of Thomas Jefferson U.

Alphabetical Faculty Listing

A

- Aagesen, Carl**
D.O. U. of Iowa
Psychiatry
- Abbasi, Ismail M**
Pediatrics (CH)
- Abcarian, Herand**
M.D. Iran
Gen. Surg.
- Abella, Dennis C**
D.O. Chgo Col. Osteo. Med.
Int. Med.
- Abramowitz, Bruce**
M.D. SUNY at Buffalo
Int. Med. (CH)
- Abrams, Richard I**
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- Accord, Lea G**
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- Acharya, Vasant**
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Ob. & Gyne.
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M.D. Chicago Medical Sch.
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- Adame, Homero**
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Fam. Prac. (CH)
- Adams, Constance**
Dr.P.H. Johns Hopkins U.
Ob. & Gyne. Nsg.
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Gen. Surg. (GRNT)
- Adams, Verdine**
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Ortho. Surg.
- Adapathya, Shankarnara**
Ob. & Gyne.
- Adelman, Scott H**
M.D. Michigan State U.
Int. Med.
- Adkins, Geoffrey**
M.D. U. of Chicago
Ob. & Gyne.
- Adler, Solomon**
M.D. Einstein Col. of Med.
Int. Med.
- Adler, Yolanda T**
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Di. Rad. & Nuc. Med., Int. Med.
- Aduss, Howard**
D.D.S. Northwestern U.
Pls. & Rec. Surg., Gen. Surg.
- Agarwal, Gyan C.**
Ph.D. Purdue U.
Physiology
- Agarwala, Brojendra N.**
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Ortho. Surg. (WSUB)
- Aimi, Kenji**
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- Airan, Mohan C.**
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- Akhtar, Moyeed**
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- Akhtar, Nusrath**
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Int. Med.
- Barton, Evan M**
M.D. Johns Hopkins U.
Int. Med.
- Basch, Michael**
M.D. Loyola U. of Chicago
Psychiatry
- Basile, Deborah A.**
M.D. Rush U.
Int. Med. (CH)
- Bass, Gordon**
M.M. Northwestern U.
Hlth. Syst. Mgt.
- Bassuk, Angel B.**
M.D. Argentina
Gen. Surg. Pediatrics
- Batchu, Koteswara R.**
M.B.B.S. India
Pediatrics
- Batty, Karen N.**
M.S. Northern Illinois U.
Med. Nsg.
- Baum, Hugo C.**
M.D. Rush U.
Ob. & Gyne.
- Baumgartner, George C.**
M.D. U. of Illinois
Urology
- Baumgartner, John M.**
Ph.D. Southern Illinois U.
Oto. & Bronc., Commun. Dis.
- Baydoun, Adnan B.**
M.D. Albany Med. Col.
Ob. & Gyne. (CH)
- Beard, Melodie**
B.S. Indiana State U.
Medical Technology
- Beck, Robert**
Ph.D. U. of Illinois
Ortho. Surg. Anatomy
- Becker, Eliot**
D.D.S. U. of Illinois
Gen. Surg. (MTSN)
- Becker, Frank O.**
M.D. U. of Illinois
Int. Med. (CH)
- Beckerman, John H**
M.D. U. of Chicago
Pediatrics
- Beebe, Robert A.**
M.D. U. of Illinois
Ob. & Gyne.

- Behrend, Frank L.**
M.D. U. of Illinois
Ob. & Gyne.
- Belanger, Michael G.**
Ph.D. U. of Illinois
Int. Med.
- Belizario, Evangelina**
M.D. Philippine Is.
Psychiatry
- Belkengren, Richard**
M.D. Loyola U. of Chicago
Pediatrics
- Bell, Michael M.**
D.O. Chgo Col. Osteo. Med.
Fam. Prac.
- Bell, Peter**
M.D. Greece
Int. Med.
- Bell, Virginia**
B.S. U. of Kansas
Occup. Therapy
- Bellosa, Nora T.**
M.D. Philippine Is.
Pediatrics (CH)
- Bender, Harry Z.**
M.D. Germany
Fam. Prac. (CH)
- Benjamin, Fred P.**
Hlth. Syst. Mgt.
- Bennett, David**
M.D. Rush Medical Col.
Neuro. Sci.
- Bennett, Donald R.**
M.D. U of Michigan
Ph.D. U of Michigan
Fam. Prac., Pharmacology
- Bennett, Thomas O.**
M.D. U. of Illinois
Ophthalmology (CH)
- Benson, Constance**
M.D. Ohio State U.
Int. Med.
- Benson, David**
M.D. U. of Illinois
Psychiatry (MLSQ)
- Berchuck, Matthew**
M.D. Case Western Reserve U.
Ortho. Surg.
- Berendi, S.Alexander**
M.D. Hungary
Psychiatry
- Bereza, Deanne**
M.S. U. of Illinois
Ob. & Gyne. Nsg.
- Bergen, Donna**
M.D. U. of Illinois
Neuro. Sci.
- Berger, Barry W.**
D.O. U. of Chicago
Int. Med.
- Berger, Jack C.**
M.D. U. of Chicago
Psychiatry
- Berger, Jan**
M.D. Loyola U. of Chicago
Pediatrics
- Berger, Victor P.**
M.D. Chicago Medical Sch.
Neuro. Sci.
- Berglund, Richard**
M.D. Rush U.
Fam. Prac.
- Berkelhammer, Charles**
M.D. Canada
Int. Med.
- Berlow, Susan J.**
M.A. Northwestern U.
Commun. Dis.
- Bernard, Linda**
M.S. Rush U.
O.R. & Surg. Nsg.
- Bernat, John**
J.D. Chg-Kent Col. of Law
Hlth. Syst. Mgt.
- Berndt, Sheila M.**
M.B. United Kingdom
Fam. Prac.
- Bernfield, Jeffrey**
M.D. Rush Medical Col.
Int. Med.
- Berroya, Asuncion C.**
M.D. Philippine Is.
Int. Med. (MAC)
- Besser, Timothy P.**
M.D. St. Louis U.
Anesthes.
- Betz, Eleanor**
B.S. I.I.T.
Prev. Med., Clinical Nutrition
- Beverly, Bert I.**
M.D. Hahnemann Med. Col.
Pediatrics (WSUB)
- Bezkorovainy, Anatoly**
Ph.D. U. of Illinois
J.D.
Biochemistry, Clinical Nutrition
- Bharani, Sakina**
M.B.B.S. India
Pediatrics
- Bharati, Saroja**
M.B.B.S. India
Pediatrics
- Bhoopal, Vasireddy**
M.B.B.S. India
M.D. India
Fam. Prac. (CH)
- Biala, Gerald E**
M.S. Rush U.
O.R. & Surg. Nsg.
- Bice, Michael K.**
M.D. Australia
Int. Med.
- Bick, Richard H.**
M.D. Northwestern U.
Fam. Prac.
- Bicknese, Donna**
B.S. Northern Illinois U.
Int. Med.
- Bidani, Anil**
M.B.B.S. India
Int. Med. Pediatrics
- Bieber, Eric J.**
M.D. Loyola U. of Chicago
Ob. & Gyne.
- Bieliauskas, Linas**
Ph.D. Ohio U.
Psy./Soc. Sc.
- Bielinski, Kenneth B.**
M.D. Chicago Medical Sch.
Dermatology
- Bielinski, Stefan**
M.D. Loyola U. of Chicago
Dermatology
- Biere, Donna Mae**
M.S.N. Loyola U. of Chicago
Comm. Hlth. Nsg.
- Bigger, Harold**
M.D. Indiana U.
Pediatrics
- Billhardt Jr, Roger A.**
M.D. Loyola U. of Chicago
Int. Med.
- Billingham, Katherine**
Ph.D. Depaul U.
Psy./Soc. Sc.
- Billman, Daniel O.**
M.D. Hahnemann Med. Col.
Pediatrics (MTSN)
- Billow, Michael A.**
D.O. Osteo. Med. Surgery Col.
Pediatrics
- Bines, Ann S.**
M.S. Rush U.
Med. Nsg.
- Bines, Steven**
M.D. Rush Medical Col.
Gen. Surg.
- Binor, Zvi**
M.D.
Ob. & Gyne.
- Birnholtz, Jason C.**
M.D. Johns Hopkins U.
Di. Rad. & Nuc. Med., Ob. & Gyne.
- Bishop, Catherine L.**
B.S. Rush U.
Medical Technology
- Bishop, Jacqueline J.**
M.M. Northwestern U.
Hlth. Syst. Mgt.

- Blaauw, Bernard B.**
M.D. U. of Illinois
Int. Med.
- Black, Jonathan**
Ph.D. U. of Pennsylvania
Ortho. Surg.
- Blackwell, Jane**
M.S. U. of Illinois
Ob. & Gyne. Nsg.
- Blaine, Richard M.**
M.D. Loyola U. of Chicago
Ophthalmology (SWED)
- Blair, John N.**
M.D. Indiana U./Purdue U.
Pediatrics COPL
- Blair, Kenneth M.**
M.D. Wayne State U.
Fam. Prac. (WSUB)
- Blake, Lesley Margaret**
M.B.
Psychiatry
- Blankenship, Marshall**
M.D. U. of Illinois
Dermatology
- Blankshain, Richard H.**
M.D. U. of Illinois
Ob. & Gyne. (WSUB)
- Bleck, Thomas P.**
M.D. Rush U.
Neuro. Sci. Int. Med.
- Blesch, Karen Smith**
M.S. Northern Illinois U.
Med. Nsg.
- Block, Joel A.**
M.D. U. of Washington
Int. Med.
- Block, Lenn**
M.S. Ed. Northern Illinois U.
Hlth. Syst. Mgt.
- Block, Leslie J.**
M.D. Chicago Medical Sch.
Oto. & Bronc.
- Bloom, Irving**
M.D. Chicago Medical Sch.
Int. Med.
- Bloom, Kenneth J.**
M.D. Rush U.
Pathology
- Bloom, Robert W.**
M.D. Rush U.
Psychiatry
- Blumberg, Martin B.**
M.D. U. of Illinois
Int. Med. (SWED)
- Blumberg, Phyllis**
Ph.D. U. of Pittsburgh
Psy./Soc. Sc.
- Board, Susan G.**
M.D. U. of Illinois
Ob. & Gyne.
- Boatwright, Patricia M.**
M.D. U. of Michigan
Ob. & Gyne.
- Boente, Matthew P.**
M.D. Rush Medical Col.
Ob. & Gyne
- Bogdonoff, Maurice L.**
M.D. Yale U.
Di. Rad. & Nuc. Med., Int. Med.
- Bohan, John Lynch**
M.D. Northwestern U.
Int. Med.
- Bolanos, Jose M.**
M.D. Mexico
Pathology (CH)
- Bolton, Cornelius F.**
M.D. Meharry Med. Col.
Int. Med.
- Bolton, Edmund**
M.D. Meharry Med. Col.
Int. Med.
- Bondoc, Felipe**
M.D. Philippine Is.
Anesthes. (MTSN)
- Bone, Roger C.**
M.D. U. of Arizona
Int. Med.
- Bonick Jr., James F.**
D.D.S. Loyola U. of Chicago
Gen. Surg.
- Bonomi, Philip D.**
M.D. U. of Illinois
Int. Med.
- Bornes, Thomas P.**
M.D. Loyola U. of Chicago
Urology
- Bosack, Robert C.**
D.D.S. Loyola U. of Chicago
Gen. Surg. (CH)
- Boscardin, James B.**
M.D. U. of Illinois
Ortho. Surg. (CH)
- Bosch, Albert V**
M.D. Spain
Ortho. Surg. (CH)
- Bowser, Robert L.**
M.D. U. of Oklahoma
Fam. Prac.
- Boyajian, Charles**
M.D. Northwestern U.
Int. Med.
- Boyd, Cynthia E.**
M.D. George Washington U.
Int. Med.
- Boyd, Eugene**
Pharmacology
- Boyer, Kenneth M.**
M.D. U. of Pennsylvania
Pediatrics, Immun./Micro.
- Boyer, Robert J.**
M.D. Chicago Medical Sch.
Fam. Prac. (CH)
- Boysen, Harry**
M.D. U. of Iowa
Ob. & Gyne.
- Bracken, Robert L.**
B.S. Loyola U. of Chicago
Hlth. Syst. Mgt.
- Brackett, E Boone**
M.D. Baylor U.
Ortho. Surg. (WSUB)
- Bradley, Craig**
M.D. U. of Tennessee
Pls. & Rec. Surg.
- Brady, Catherine**
B.S. Mt. St. Mary College
Occup. Therapy
- Brandt-Guckes, Deborah**
M.S. U. of Wisconsin
Commun. Dis.
- Brant, Julius**
M.D. Chicago Medical Sch.
Fam. Prac. (CH)
- Brar, Balbir S.**
M.B.B.S. India
Int. Med.
- Braun, Bennett G.**
M.D. U. of Illinois
Psychiatry
- Braun, Donald**
Ph.D. U. of Illinois
Int. Med., Immun./Micro.
- Braun, Leonard .L**
M.D. Rush U.
Pediatrics
- Braun, Lynne**
M.S. Rush U.
Med. Nsg.
- Braverman, Berton**
Ph.D. Indiana U.
Anesthes., Physiology
- Bray, James B**
M.D. Loyola U. of Chicago
Ob. & Gyne. (CH)
- Brazley, Marsha Jane**
M.D. U. of Illinois
Pediatrics
- Bregman, Andrew**
M.D. Northwestern U.
Int. Med. CDH
- Breit, Robert B.**
M.D. U. of Virginia
Di. Rad. & Nuc. Med.
- Bremer, Eric**
B.A. Millikin U.
Immun./Micro.
- Bressler, Judith H.**
M.D. Rush U.
Ob. & Gyne.

- Breth, George**
M.D. Austria
Int. Med. (CH)
- Breuhaus, Herbert C.**
M.D. Rush U.
Int. Med.
- Brewer III, Robert D.**
M.D. U. of Illinois
Prev. Med.
- Brian, Norma S.**
M.S.N. Indiana State U.
Med. Nsg.
- Brill, John H**
M.D. Ohio State U.
Int. Med.
- Bristow, Walter J.**
M.D. Med. U. of S.C.
Int. Med.
- Broadbent, Michael**
M.S. U. of California
Med. Phys.
- Brocken, Cecilia**
Ph.D. Loyola U. of Chicago
Psy./Soc. Sc., Pediatrics
- Brockman, Robert**
M.D. Loyola U. of Chicago
Gen. Surg.
- Brocks, Dietrich**
Ph.D. Germany
Biochemistry
- Brody, Jacob A.**
M.D. SUNY Downstate Med. Ctr.
Prev. Med.
- Bromberg, Merrick J.**
D.O. Chgo Col. Osteo. Med.
Pediatrics
- Brown Jr., Calvin R.**
M.D. Wayne State U.
Int. Med. (SRH)
- Brown, David V. L.**
M.D. Northwestern U.
Ophthalmology
- Brown, Dawn**
M.S. U. of Illinois
Ped. Nsg.
- Brown, Elizabeth .F**
M.D. U. of Illinois
Pathology
- Brown, Lorin M.**
M.D. Chicago Medical Sch.
Ortho. Surg.
- Brown, Marie T.**
M.D. Rush U.
Int. Med.
- Brown, Max Douglas**
J.D. Depaul U.
Hlth. Syst. Mgt.
- Brown, R. Gordon**
M.D. Rush U.
Int. Med.
- Brown, Roger**
Ph.D. U of Michigan
Psy./Soc. Sc.
- Brown, William C.**
M.D. U. of Cincinnati
Int. Med.
- Brozenec, Sally**
M.S. Rush U.
O.R. & Surg. Nsg.
- Brubaker, Linda**
M.D. Rush U.
Ob. & Gyne.
- Brueckner, David A.**
M.D. U. of Washington
Psychiatry
- Brueschke, Erich**
M.D. Temple U
Fam. Prac., Physiology
- Bruetman, Martin E.**
M.D. Argentina
Neuro. Sci.
- Bruhn, Charles E.**
M.B.A. Northern Illinois U
Hlth. Syst. Mgt.
- Brundage, Joan**
M.S. U. of Colorado
Ped. Nsg.
- Bruun, Edward E.**
M.H.A. Xavier U.
Hlth. Syst. Mgt.
- Bryant, R. Samuel**
M.D. U. of Nebraska
Pls. & Rec. Surg.
- Buch, Piyush C.**
M.B.B.S. India
Psychiatry (CH)
- Bucheleres, Gunther H.**
M.D. Germany
Pediatrics Int. Med.
- Buck, David W.**
M.D. Indiana Central U.
Psychiatry
- Buckingham, Richard A.**
M.D. U. of Illinois
Oto. & Bronc.
- Buckley, Janet**
M.S. Northern Illinois U.
Med. Nsg.
- Buckwalter, Kathleen**
Ph.D. U. of Illinois
Psychi. Nsg.
- Buder, Alex**
M.D. Argentina
Int. Med.
- Budz, Jerome**
M.D. Loyola U. of Chicago
Dermatology
- Buenger, Richard E.**
M.D. Northwestern U.
Di. Rad. & Nuc. Med.
- Buentello, Gloria N.**
M.D. Mexico
Pediatrics (MTSN)
- Bulger, Richard F.**
M.D. U. of Illinois
Oto. & Bronc.
- Bulmash, Jack Martin**
M.D. U. of Illinois
Int. Med.
- Burbank, Barbara Beth**
M.T.S. Prot. Epis. Theo. Sem.
Relig. & Hlth.
- Burck, Russell**
Ph.D. Princeton Theo. Sem.
Relig. & Hlth.
- Burdick, Allison L.**
M.D. U. of Illinois
Fam. Prac. (WSUB)
- Burn, Elizabeth**
M.S.N. Vanderbilt U.
O.R. & Surg. Nsg.
- Burroughs, Jefferson M.**
M.D. U. of Cincinnati
Int. Med.
- Burstein, Stuart**
M.D. U. of Illinois
Psychiatry
- Burton, Stephen A.**
Ph.D. U. of Southern Cal.
Psy./Soc. Sc.
- Burton, Wayne N.**
M.D. U. of Oregon
Prev. Med.
- Busch, Katie**
M.D. U. of Wisconsin
Psychiatry
- Buseck, Mark S.**
M.D. U. of Pennsylvania
Ortho. Surg.
- Bush-Joseph, Charles**
M.D. U of Michigan
Ortho. Surg.
- Butcher, Jaynee**
Ph.D. U. of Kansas
Oto. & Bronc., Commun. Dis.
- Butler, Craig D.**
M.D. Rush U.
Pediatrics
- Butler, Marguerite**
M.S.N. SUNY at Buffalo
Geront. Nsg.
- Butler, Paula R.**
M.D. Tufts U.
Int. Med. (MTSN)
- Butler, Peter W.**
M.H.S.A. U of Michigan
Hlth. Syst. Mgt.

Byers, Sharon

Ph.D. Australia
Biochemistry, Ortho. Surg.

C

Cagan, Janyce

M.S.N. Loyola U. of Chicago
Ped. Nsg.

Cahill, Maureen

M.S.N. Boston U.
Ped. Nsg.

Caldarelli, David D.

M.D. U. of Illinois
Oto. & Bronc.

Calderon, Julio

M.D. Bolivia
Ob. & Gyne. (CH)

Caldwell, Richard G.

M.D. U. of Vermont
Gen. Surg.

Callahan, Daniel H.

M.D. U. of Maryland
Urology

Callahan, Patrick

M.D. Rush Medical Col.
Anesthes.

Camac, Joyce M.

M.D. Tufts U.
Int. Med.

Camacho, Bienvenido

M.D. Philippine Is.
Fam. Prac. (CH)

Camacho, Felicitas C.

M.D. Philippine Is.
Pediatrics (CH)

Camara, Daniel S.

M.D. Brazil
Int. Med.

Camp, Toni Jean

M.D. U. of Illinois
Psychiatry

Campanella, Ruth S.

M.D. Rush U.
Oto. & Bronc. (GRNT)

Campbell, Bruce C.

Dr.P.H. U. of Illinois
Hlth. Syst. Mgt.

Campbell, David R.

M.D. Cornell U. Med. Ctr.
Int. Med.

Campbell, Michael J.

M.D. U. of Illinois
Pediatrics (CH)

Cann, Stephen R.

M.D. Chicago Medical Sch.
Psychiatry (MTSN)

Cannon, Ann

M.S. Rush U.
Ped. Nsg.

Cannon, Joseph P.

M.D. U. of Illinois
Gen. Surg. (CH)

Cannon, Robert Lee

M.D. Indiana State U.
Ophthalmology (GBUR)

Cantoma, Bernard

M.D. Cuba
Pediatrics

Carasso, Ben

M.D. Greece
Int. Med.

Carlock, William D.

M.D. U. of Illinois
Psychiatry

Carlson-Sabelli, L.

M.S. Rush U.
Psychi. Nsg.

Carlson, Barbara S.

M.D. Chicago Medical Sch.
Fam. Prac.

Carlson, Charles R.

Ph.D. Vanderbilt U.
Psy./Soc. Sc.

Carlson, Elizabeth

M.S.N. U. of Alabama
Med. Nsg.

Carlson, Lawrence D.

M.D. St. Louis U.
Int. Med. (GRNT)

Caron, Kathleen H.

M.D. Loyola U. of Chicago
Di. Rad. & Nuc. Med.

Carr, Ginger

M.S. Rush U.
O.R. & Surg. Nsg.

Carr, Ian R.

M.B.B.S. United Kingdom
Pediatrics

Carr, Janet

M.D. Meharry Med. Col.
Pediatrics

Carroll, Gilbert

M.D. Hahnemann Med. Col.
Anesthes.

Carroll, Victoria S.

M.S. Rush U.
Med. Nsg.

Carton, Robert

M.D. Northwestern U.
Int. Med.

Cartwright, Rosalind D.

Ph.D. Cornell U. Med. Ctr.
Psy./Soc. Sc.

Carvalho, Anna

M.S. Harvard U.
Hlth. Syst. Mgt. Carvey, Paul
Ph.D. Rush U.
Neuro. Sci., Pharmacology

Case, John P

M.D. Tufts U.
Int. Med.

Casey, Donald E.

M.D.
Int. Med.

Casey, Larry C.

M.D. U. of Illinois
Ph.D. Georgetown U.
Int. Med.

Casini, Donna

M.S.N. Case Western Reserve U.
O.R. & Surg. Nsg.

Casini, Jack G.

M.D. Ohio State U.
Ortho. Surg.

Cassini, Carol L.

M.S. Ohio State U.
Med. Nsg.

Castaneda, Jorge

M.D. Mexico
Int. Med. (MTSN)

Casty, Frank E.

M.D. Temple U.
Int. Med.

Catchpole, Hubert R.

Ph.D. U. of California
Neuro. Sci.

Catellani, Constance

M.D. U. of Illinois
Int. Med.

Catinella, Frank Peter

M.D. New York U.
Cv.T. Surg.

Cava, Jose M.

M.D. Spain
Ob. & Gyne. (CH)

Cavanaugh Jr., James L.

M.D. U. of Pennsylvania
Psychiatry

Cavanaugh, Stephanie

M.D. Northwestern U.
Psychiatry, Int. Med., Ob. & Gyne.

Cavens, Robert Lee

M.D. Rush U.
Fam. Prac. (CH)

Cazares, Jaime

M.D. U. of Illinois
Fam. Prac. (CH)

Ceaser, Leonard S.

M.D. Loyola U. of Chicago
Fam. Prac. (WSUB)

Celewycz, Bohdan S.

M.D. Germany
Pediatrics

- Cella, David F.**
Ph.D. Loyola U. of Chicago
Psy./Soc. Sc., Int. Med.
- Cercone, Jaime**
M.D. Chicago Medical Sch.
Gen. Surg.
- Cha, Eung Man**
M.D. Korea
Di. Rad. & Nuc. Med. (MTSN)
- Chaitkin, Paul**
D.D.S. U. of Illinois
Oto. & Bronc.
- Chan, Paulino**
M.D. Philippine Is.
Ortho. Surg.
- Chande, Sumitra**
M.B.B.S. India
Pediatrics (CH)
- Chandler, Jesse**
M.D. Howard U.
Ob. & Gyne. (MTSN)
- Chandra, Govind**
M.D. India
Int. Med. (COPL)
- Chang, Timothy C.**
M.D. China-Taiwan
Pediatrics
- Charters, John R.**
M.D. U of Michigan
Di. Rad. & Nuc. Med.
- Chase, Robert A.**
M.D. Rush Medical Col.
Int. Med.
- Chaudhary, Mohammad Y.**
M.D. Pakistan
Pediatrics
- Chavarria, Arturo**
M.D. Rush U.
Int. Med. (CH)
- Chawapun, Ponpimol**
M.D. Thailand
Fam. Prac. SWED
- Cheifetz, David I.**
Ph.D. U. of Chicago
Psy./Soc. Sc.
- Chen, Chun-Chang**
Ph.D. Cornell U. Med. Ctr.
Biochemistry
- Chen, Jackson W.**
M.D. China-Taiwan
Pediatrics
- Chen, Kuo Ching**
M.D. China-Taiwan
Gen. Surg. (CH)
- Chhablani, Ramesh**
M.B.B.S. India
Int. Med.
- Chisholm, Paul S.**
M.D. Rush U.
Pediatrics (MTSN)
- Chiu, Kang M.**
Ph.D. U. of Illinois
Immun./Micro.
- Chor, Philip N.**
M.D. U. of Cincinnati
Psychiatry
- Chow, Herbert**
Ph.D. U. of Illinois
Immun./Micro.
- Christen, Charles**
M.D. Switzerland
Int. Med.
- Christensen, Eldis M.**
M.D. U. of Illinois
Gen. Surg. (LMGH)
- Christian, Celia S.**
M.D. Wright State U.
Pediatrics
- Christian, Joseph R.**
M.D. Loyola U. of Chicago
Pediatrics
- Christiansen, Kathryn**
D.N.Sc. Rush U.
Comm. Hlth. Nsg.
- Christman, Luther**
Ph.D. Michigan State U.
Psychi. Nsg., Psy./Soc. Sc.
- Christopher, Beth Anne**
M.S. U of Michigan
Med. Nsg.
- Christopoulos, Angelos**
M.D. Greece
Psychiatry
- Chronis, Basil G.**
M.D. Greece
Ob. & Gyne. (CH)
- Chudwin, David S.**
M.D. U of Michigan
Immun./Micro., Pediatrics
- Chuman, Mary A.**
M.A. U. of Washington
Psychi. Nsg.
- Chung-Bin, Anthony**
Ph.D. Se. Louisiana U.
Ther. Rad., Di. Rad. & Nuc. Med.,
Med. Phys.
- Cinel, Scott J**
M.D. Loyola U. of Chicago
Urology
- Claman, Maurice A.**
M.D. Tulane U.
Gen. Surg. GBUR
- Clark Jr., Richard N.**
M.D. Mexico
Int. Med.
- Clark, David C.**
B.A. U. of Chicago
Psy./Soc. Sc., Psychiatry
- Clark, David John**
M.B.,B.Ch. United Kingdom
Ortho. Surg. (COPL)
- Clark, James G.**
M.D. U. of Illinois
Int. Med.
- Clark, Susan H.**
M.D. Rush U.
Psychiatry
- Clarke, Jan Andree**
M.D. Cornell U. Med. Ctr.
Int. Med. (MTSN)
- Clasen, Raymond A.**
M.D. U. of Illinois
Pathology
- Clemmings, Linda**
M.A. Roosevelt U.
M.S. Rush U.
O.R. & Surg. Nsg.
- Close, Timothy P.**
M.D. U. of Illinois
Di. Rad. & Nuc. Med.
- Co, Edward C.**
M.D. Philippine Is.
Pediatrics
- Cocadiz, Norval**
M.D. Philippine Is.
Anesthes. (CH)
- Cochran, Lynn A.**
M.S. Rush U.
Med. Nsg.
- Cockram, David B.**
M.S. Rush U.
Clinical Nutrition
- Cohan, Gregg R.**
M.D. U. of Chicago
Int. Med.
- Cohen, Barney .I**
J.D. Depaul U.
Hlth. Syst. Mgt.
- Cohen, Fredric**
Ph.D. SUNY at Stony Brk. H.S. Ctr.
Physiology
- Cohen, Gerald**
M.D. U. of Illinois
Int. Med. (SWED)
- Cohen, Maynard**
M.D. Wayne State U.
Ph.D. U. of Minnesota
Neuro. Sci., Biochemistry
- Colandrea, Michael A.**
M.D. U. of Illinois
Int. Med.
- Cole, Ada A.**
Ph.D. Loyola U. of Chicago
Anatomy
- Cole, David R.**
M.D. Queens U.
Int. Med. (CH)

Cole, Edmond

Ph.D. Purdue U.
Biochemistry Int. Med.

Cole, Warren H.

M.D. U. of Washington
Gen. Surg.

Coleman, Cedric L.

M.D. U. of Illinois
Int. Med.

Coleman, Fay K.

M.D. Creighton U.
Ther. Rad.

Colletti, Mary Ann

M.S. Rush U.
Med. Nsg.

Collins Jr., Frank L.

Ph.D. Auburn U.
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Collins, James J.

M.D. Rush U.
Int. Med.

Collins, Patricia

M.S. Northern Illinois U.
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Colmev, Thomas

M.D. Georgetown Col.
Ortho. Surg. (CH)

Combs, Stanley L.

M.D. St. Louis U.
Int. Med. (CH)

Comella, Cynthia L.

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Neuro. Sci.

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M.D. Northwestern U.
Int. Med. (CH)

Confino, Edmond

M.D. Israel
Ob. & Gyne.

Conkey, Christine

M.S. Rush U.
O.R. & Surg. Nsg.

Conlon, Kevin

M.D. Rush U.
Int. Med.

Connelly, Robert

M.A. Northern Illinois U.
Commun. Dis.

Conner, Mary

M.S. Rush U.
Ped. Nsg.

Connolly, Margaret

M.S.N. U. of Illinois
Med. Nsg.

Conrad, Harold A.

M.D. Ohio State U.
Pediatrics

Conterato, Dean

M.D. Rush Medical Col.
Ther. Rad.

Cook, Barbara S.

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Commun. Dis.

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M.A. U. of Nebraska
M.S. Rush U.
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Ob. & Gyne.

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M.D. Loyola U. of Chicago
Pediatrics (MTSN)

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Pathology, Immun./Micro.,
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Ob. & Gyne. Nsg.

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Physiology

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Di. Rad. & Nuc. Med.

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Oto. & Bronc.

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Int. Med.

Diamond, Peter S.

M.D. Loyola U. of Chicago
Int. Med. (CH)

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Hlth. Syst. Mgt.

Dietz, Mark A.

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Diffenbaugh, Willis G.

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Diggins, Julianne M.

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Hlth. Syst. Mgt.

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Fam. Prac.

Dimiceli, Salvatore A.

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Biochemistry

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Anatomy

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Comm. Hlth. Nsg.

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Dixie, Dora D.

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Ph.D. I.I.T.
Anesthes.

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Ob. & Gyne.

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M.D. Hahnemann Med. Col.
Pediatrics (CH)

Doherty, Carolyn M.

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Ob. & Gyne.

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Med. Nsg.

Domont, Lawrence A.

M.D. George Washington U.
Int. Med. (GRNT)

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Med. Nsg., Physiology

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Anesthes. (CH)

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M.S.N. Penn. State U.
Ped. Nsg.

Donner, Lorraine

M.S.N. Yale U.
Psychi. Nsg.

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Ph.D. U. of Pittsburgh
Med. Nsg.

Doolas, Alexander

M.D. U. of Illinois
Gen. Surg.

Dorman, Robert J.

D.O. Chgo Col. Osteo. Med.
Int. Med.

Dorsey, Lawrence

M.D. Northwestern U.
Pediatrics

Doshi, Mayank Y.

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M.D. India
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Pediatrics (CH)

Dougherty, Terence J.

Ph.D. U. of Detroit
Immun./Micro.

Douglas, Gilbert W.

M.B. U. OF Illinois
M.D. Chicago Medical Sch.
Gen. Surg. GBUR

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Hlth. Syst. Mgt.

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Int. Med.

Dowling, Harry F.

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Int. Med.

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Clinical Nutrition, Hlth. Syst. Mgt.

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Int. Med. (GRNT)

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Psychiatry

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Duda, Francis John

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Pediatrics (MTSN)

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Ob. & Gyne., Biochemistry

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Int. Med.

Dunlap, S Thomas

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Hlth. Syst. Mgt.

Dunlop, John T.

M.D. Johns Hopkins U.
Int. Med.

Durdana, Athiya

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Anatomy

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M.S. George Williams Col.
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Prev. Med., Int. Med.

Dwass, Golda

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Ob. & Gyne. Nsg.

Dwyer, William

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Pathology

Dy, Deana Lim

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E

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Prev. Med.

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Ph.D. Cornell U. Med. Ctr.
Neuro. Sci.
- Hartsell, William**
M.D. U. of Oklahoma
Ther. Rad.
- Harvey, Richard F.**
M.D. U. of Illinois
Phys. Med. & Rhb. MARI
- Harwood, Robert**
M.D. U. of Illinois
Fam. Prac. (CH)
- Haskins, Nancy K.**
M.D. U. of Kansas
Fam. Prac.
- Hass, George**
M.D. Harvard U.
Pathology
- Hassan, Anisa**
M.B.B.S. Pakistan
Int. Med.
- Hassel, Maria**
M.S. Loyola U. of Chicago
M.S. Northern Illinois U.
Clinical Nutrition
- Hasson, Harrieth**
M.B., B.Ch. Egypt
Ob. & Gyne.
- Hatfield, Richard M.**
M.D. Marshall U.
Ophthalmology
- Hatton, Jean**
M.S. Rush U.
Geront. Nsg.
- Hattori, Steven M.**
M.D. U. of Illinois
Fam. Prac.
- Haussmann, R. Dieter**
Ph.D. U of Michigan
Hlth. Syst. Mgt.
- Havdala, Henri S.**
M.D. Egypt
Anesthes. (MTSN)
- Hawes, Jane P.**
M.S. Southern Illinois U.
Prev. Med.
- Hawrysis, Andrea**
M.S.N. U. of Alabama
Med. Nsg.
- Hayashi, James A.**
Ph.D. U. of Wisconsin
Biochemistry
- Hayes, Mary J.**
D.D.S. U. of Illinois
Gen. Surg.
- Haynes-Lief, Dolores**
Med. Nsg.
- Heching, Norman**
M.D. Israel
Int. Med.
- Hecht, Alan H.**
M.D. Emory U.
Di. Rad. & Nuc. Med. (MTSN)
- Heck, Robert S**
M.D. Northwestern U.
Fam. Prac. (CH)
- Heckel, V. Eileen**
M.D. U. of Chicago
Anesthes.
- Hedberg, Carl A.**
M.D. Cornell U. Med. Ctr.
Int. Med.
- Hedblom Jr., Carl A.**
M.D. Harvard U.
Int. Med.
- Hegarty, John D.**
M.D. U. of Illinois
Anesthes.
- Heil, Nancy Jo**
M.D. U. of Illinois
Pediatrics
- Heiliczer, Jonathan D.**
M.D.
Pediatrics
- Hejna, William F..**
M.D. U. of Washington
Ortho. Surg., Hlth. Syst. Mgt.
- Heller, Floyd N.**
M.D. U. of Illinois
Anesthes.
- Heller, Paul**
M.D. Czechoslovakia
Int. Med.
- Hemwall, Gustav A.**
M.D. Loyola U. of Chicago
Fam. Prac. (WSUB)
- Henderson, Glenda**
M.B.A. Suffolk U.
Hlth. Syst. Mgt.
- Hendler, Samuel**
M.D. U. of Illinois
Psychiatry
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Ther. Rad. Med. Phys.
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Pediatrics Int. Med.
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Neuro. Sci.
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B.S. Mexico
Pathology (MTSN)
- Hering, Thomas M.**
Ph.D. Case Western Reserve U.
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Int. Med.
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- Hertko, Leonard**
M.D. St. Louis U.
Int. Med.
- Herwick, Paul Q.**
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- Herzig, Laurie**
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Int. Med.
- Hess, Steve A.**
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Int. Med.
- Hesseltine, H. Close**
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- Hewitt, Susan Mary**
M.S. Rush U.
Geront. Nsg.
- Heymann, Mark**
M.D. U. of Illinois
Int. Med. (CDH)
- Heyworth, Judith Ann**
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Int. Med.
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Fam. Prac. (GBUR)
- Hill, David**
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Commun. Dis.
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Int. Med. (MAC)
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Gen. Surg. (MTSN)
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Int. Med.
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Jaffe, Charles M.
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Gen. Surg.
- Jamieson, Rodney A.**
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Int. Med.
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M.S.N. Catholic U. of America
Med. Nsg.
- Janus, Linda M.**
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Ob. & Gyne.
- Jaoojareenkul, Thiti**
M.D. Thailand
Int. Med. (GRNT)
- Jares III, Joseph J.**
M.D. Rush Medical Col.
Int. Med.
- Jarmoszuk, Irene**
M.D. Col. of Med. & Den. of N.J.
Immun./Micro.
- Jaros, Joseph A.**
M.D. U. of Arizona
Anesthes.
- Jarrett, Theodore A.**
M.D. Israel
Ob. & Gyne. (MTSN)
- Jassak, Patricia**
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- Javaid, Javaid I.**
Ph.D. SUNY at Buffalo
Pharmacology
- Javid, Hushang**
M.D. U. of Illinois
Ph.D. U. of Illinois
Cv.T. Surg.
- Jaworski, Stanley D.**
M.B.A. Northeastern U.
Hlth. Syst. Mgt.
- Jean-Jacques, Wilfred**
M.D. Haiti
Int. Med. (MTSN)
- Jeffery, Rosemarie M.**
M.D. Wayne State U.
Int. Med.
- Jelinek, Richard C.**
Ph.D. U of Michigan
Hlth. Syst. Mgt.
- Jellinek, Leslie A.**
M.A. U of Michigan
M.S. Rush U.
Hlth. Syst. Mgt.
- Jendro, Thomas A.**
M.B.A. Depaul U.
Hlth. Syst. Mgt.
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Int. Med.
- Jensen, Judd M.**
M.D. Rush Medical Col.
Neuro. Sci.
- Jensen, Thomas**
Ph.D. U. of Cincinnati
Oto. & Bronc., Commun. Dis.
- Jensik, Robert J.**
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Cv.T. Surg.
- Jensik, Stephen C.**
M.D. U. of Illinois
Ph.D. U. of Illinois
Gen. Surg.
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Ph.D. U. of Calgary
Ther. Rad., Med. Phys.
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Ph.D. U. of Minnesota
Ob. & Gyne.
- Jezek, Judith**
Ed.D.
Med. Nsg.
- Jiron, Arnoldo J.**
M.D. FOREIGN
Psychiatry
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D.D.S. U. of Illinois
Gen. Surg.
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Med. Nsg. (GRNT)
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Gen. Surg. Pediatrics
- Johnson, Gene Elvin**
M.D. Indiana U./Purdue U.
Fam. Prac. (GBUR)
- Johnson, Marcia**
M.S. U. of Illinois
- Johnson, Marilyn A.**
Ph.D. U. of Pennsylvania
Psy./Soc. Sc.
- Johnson, Martha**
M.N. U. of Pittsburgh
Ob. & Gyne. Nsg.
- Johnson, Mary E.**
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Psychi. Nsg.
- Johnson, Mary M.**
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Int. Med.
- Johnson, Mary T.**
M.S. Rush U.
Comm. Hlth. Nsg.
- Johnson, Paul**
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Psy./Soc. Sc.
- Johnson, Richard**
M.D. Chicago Medical Sch.
Gen. Surg. (MTSN)
- Johnston, Louis C.**
Prev. Med. (GRNT)
- Jones Jr., Clay H.**
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Pediatrics, Prev. Med.
- Jones, Elizabeth C.**
M.D. Tulane U.
Pediatrics
- Jones, Frank A. D.**
M.D. Italy
Psychiatry
- Jones, Frank W.**
M.D. Northwestern U.
Int. Med.
- Jones, Jacqueline L.**
M.S. Florida Int'l U.
Occup. Therapy
- Jones, Jerry Lynne**
M.P.H. U. of Illinois
Int. Med.
- Jones, Paul J.**
M.D. Rush U.
Oto. & Bronc.
- Jones, Philip N.**
M.D. U. of Washington
Int. Med.
- Jordan Jr., James V.**
M.D. Loyola U. of Chicago
Int. Med.
- Jordan, Robert A.**
M.D. Rush U.
Pediatrics
- Julian, Ormand C.**
M.D. U. of Chicago
Ph.D. U. of Chicago
Cv.T. Surg.
- Jung, Eduard**
M.D. Germany
Pediatrics
- Jursich, Catherine**
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Ped. Nsg.

K

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Int. Med. (CH)
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Int. Med.
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Pediatrics (CH)
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M.D. Chicago Medical Sch.
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Ob. & Gyne.
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Int. Med. (GRNT)
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Int. Med. (MTSN)
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Int. Med.
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Hlth. Syst. Mgt.
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Neuro. Sci.
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M.D. Rush U.
Int. Med. Immun./Micro.
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Oto. & Bronc.
- Keys, Cheryl L.**
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Ophthalmology
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M.B.B.S. India
Int. Med.
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Int. Med.
- Khairbek, Mahmoud**
Pediatrics
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Pediatrics
- Kiekhaefer, Nina M.**
M.D. U. of Washington
Fam. Prac.
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- Lawler, Patricia E.**
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Med. Nsg.
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- Lawton, Stanley E.**
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Psychiatry
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Hlth. Syst. Mgt.
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Int. Med.
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Pediatrics, Int. Med., Pathology
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Int. Med.
- Levin, Mark H.**
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Int. Med. (CH)
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B.S. Marquette U
Medical Technology

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Pediatrics

O'Connor, Frederica
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O'Donnell, James
Pharm.D U of Michigan
Pharmacology

O'Donnell, John W.
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Int. Med. (WSUB)

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Relig. & Hlth.

Ochs, Todd J.
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Hlth. Syst. Mgt.

Odland, Blair
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Odwazny, Richard S.
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M.B.A.
Hlth. Syst. Mgt., Med. Phys.

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Phys. Med. & Rhb.

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Oldfield, R. Charles
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Hlth. Syst. Mgt. Prev. Med.

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Olson, Jean
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Ob. & Gyne. **Olwin, John H.**

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Int. Med.

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Med. Nsg.

P

Pablo, Myrna M.

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Ped. Nsg.

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Page El, Edward

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Dermatology, Pediatrics

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Ophthalmology

Palmer, Scott B.

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Panitch, Silvia Z. V.

M.D.

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Ophthalmology (WSUB)

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Urology

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Parke, Barbara

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Pharmacology

Parnass, Samuel M.

M.D. Israel

Anesthes.

Parsons, Robert

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Int. Med.

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- Perret, Beverly**
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Gen. Surg.

Pomerantz, Rhoda S.
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M.D. Spain
Gen. Surg. (CH)

Ponglorpisit, Suporn
M.D. Thailand
Gen. Surg. (MTSN)

Ponsiglione, John D.
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Int. Med.

Pool, Ellis A.
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Clinical Nutrition

Popper, Michael S.
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Int. Med.

Port, Jeffrey H.
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Int. Med. (CH)

Porter, Kenneth B.
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Pediatrics

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Prev. Med.

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Ortho. Surg.

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Psychi. Nsg. Int. Med.

Potempa, Lawrence A.
Ph.D. Northwestern U.
Immun./Micro.

Pottage Jr., John
M.D. St. Louis U.
Int. Med., Immun./Micro.

Pottage, Marian
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O.R. & Surg. Nsg.

Poulos, George T.
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Fam. Prac. (CH)

Poznanski, Elva
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Prabhu, Mukund M.
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Prancan, Arthur
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Priest, Edwin R.
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Int. Med.

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Prince, Clifford
D.D.S. Loyola U. of Chicago
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Puray, Milagros D.
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Pushkin, Edward A.
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Ophthalmology

Putnam, Frank W.
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Pyati, Prahlad
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Pathology

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M.B., B.Ch. Egypt
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Rafelson Jr., Max E.
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- Rajan, Padmini**
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- Ramakrishna, B.**
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- Ramsey, Ruth G.**
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- Ramunis, Jerry**
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- Rane-Szostak, Donna**
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Fam. Prac., Int. Med. (CH)
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- Raycraft, William B.**
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- Robertson, Sandra B.**
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- Rosenberg, Michael A.**
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- Rosenblate, Howard**
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- Rosenblatt, Yvonne**
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- Rosenblum, Joseph**
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Int. Med.
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Ruff, William J.

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Pediatrics
- Salvi, Sharad**
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Pediatrics (CH)
- Salzman, Gary H.**
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Int. Med.
- Samelson, Charles F.**
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Psychiatry
- Samuels, Lawrence J.**
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Int. Med.
- Samuelson, Dean C.**
M.D. Harvard U.
Fam. Prac.
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Pediatrics
- Sanchez, Jose J.**
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- Sanchez, Jose Ramon**
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- Sand, Peter K.**
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- Sandell, Linda**
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- Sandrick, Edward**
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Hlth. Syst. Mgt.
- Sandrolini, James A.**
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Gen. Surg.
- Sankary, Howard**
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- Santos, Antonio L.**
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- Santucci, Barbara**
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M.D. U. of Michigan
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Pathology (MTSN)
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Fam. Prac.
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Pediatrics
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Int. Med. (MTSN)
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Int. Med.
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Int. Med. (CH)
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Int. Med.
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Int. Med. (COPL)
- Schlossberg, Debra L.**
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Int. Med.
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Prev. Med., Int. Med.
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Psy./Soc. Sc., Prev. Med.
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Int. Med.
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Med. Nsg.
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Pathology (CH)
- Schuessler, Roger R.**
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Int. Med.
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Int. Med. (GRNT)
- Schuetz, John N.**
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Ob. & Gyne.
- Schuytema, Eunice E.**
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- Schwartz, Maurice A.**
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Int. Med. (MTSN)
- Schwartz, Melvin M.**
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Pathology
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Neuro. Sci. (CH)
- Schwartz, Theodore B.**
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Int. Med.
- Schwartzman, William A.**
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Int. Med.
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Psychiatry
- Schwer, William**
M.D. U. of Illinois
Fam. Prac. (CH)
- Scimecca, Rae L.**
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Pediatrics
- Scott, Mary-Margaret**
M.D. U. of Illinois
Ob. & Gyne.
- Scupham, William K.**
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- Seale, Raymond**
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Anatomy
- Secemsky, Solomon**
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Int. Med.
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Gen. Surg. SRH
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Pls. & Rec. Surg. (CH)
- Segreti, John**
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Int. Med.
- Seidman, Leon**
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Gen. Surg. (MTSN)
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Pathology, Hlth. Syst. Mgt.
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D.O. Chgo Col. Osteo. Med.
Ob. & Gyne
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Int. Med.
- Semprevivo, Diane**
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Occup. Therapy
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- Silins, V. Raymond**
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Int. Med.
- Silver, Bruce A.**
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Hlth. Syst. Mgt.
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Pediatrics
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- Simon, David**
Int. Med.
- Simon, Gerald J.**
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Int. Med.
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- Singh, Rama S.**
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- Skul, Vesna**
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- Smith, Xavier P.**
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- Snell, R. Jeffrey**
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- Snyder, Marsha**
M.S.N. U. of Illinois
Psychi. Nsg.
- Sobin, W. Harley**
M.D. New York U.
Int. Med. (MTSN)
- Sochacki, Stacy L.**
M.S. NY St. Col-Human Eclyg.
Hlth. Syst. Mgt.

Sodetz, Richard A.

M.D. U. of Illinois
Ortho. Surg. (CH)

Sokalski, Steven J.

D.O. Chgo Col. Osteo. Med.
Int. Med. (CH)

Sokhey, B. J.

M.B.B.S. Burma
Psychiatry (CH)

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Int. Med. (MTSN)

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M.D. Iran
Ob. & Gyne.

Solliday, Norman H.

M.D. U. of Chicago
Int. Med. (CH)

Soltes, Steven F.

M.D. Loyola U. of Chicago
Oto. & Bronc.

Somberg, Alvin

M.D. Yale U.
Int. Med. (SWED)

Sommerfeldt, Lorraine

M.D. Rush Medical Col.
Psychiatry

Sompalli, P. Naidu

M.B.B.S. India
Gen. Surg.

Sorrells-Jones, Jean

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M.D. Chicago Medical Sch.
Urology

Soud, Abdul-Kader

M.D. Syria
Pediatrics

Southwick, Harry W.

M.D. Harvard U.
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- Strauss, Lynn M.**
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Prev. Med., Int. Med.

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Psychiatry

Thompson, Lee D.
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Hlth. Syst. Mgt.

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Int. Med. GBUR

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Fam. Prac. BETH

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Int. Med.

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Int. Med.

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Biochemistry, Int. Med.

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Hlth. Syst. Mgt.

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Ob. & Gyne.

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Gen. Surg. (WSUB)

Tilkin, Jeffrey M.
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Psychiatry

Timmerman, Gary L.
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Gen. Surg.

Timmons, John A.
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Tio, Diego U.
M.D. Philippine Is.
Anesthes. (MTSN)

Tiruvury, Anuradha
M.B.B.S. India
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Tkach, John I.
M.D. U.S.S.R.
Fam. Prac. (CH)

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M.B.B.S. Malaya
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Tomasko, Marilyn
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Immun./Micro.

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Int. Med.

Topel, Jordan L.
M.D. Loyola U. of Chicago
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Torczynski, Elise
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Ophthalmology

Tordecilla, Lydia
M.S. Depaul U.
Geront. Nsg.

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M.D. Colombia
Neuro. Surg. (MTSN)

Trager, Eugene P.
M.D. U. of Illinois
Psychiatry

Trakas, Demetrius A.

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Tran, Ba-Ngoc

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Travers, Noreen M.

M.S.N. Loyola U. of Chicago
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Trenholme, Gordon M.

M.D. Marquette U.
Int. Med., Pharmacology

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M.D. U. of Illinois
Ophthalmology (MTSN)

Trieglaff, Suzanne G.

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Ped. Nsg.

Troyk, Philip R.

Ph.D. U. of Illinois
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Trubitt, Mitchell J.

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Int. Med. (MTSN)

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Truchly, Vasil

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Hlth. Syst. Mgt.

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Ped. Nsg.

Trujillo-Gomez, Jamie

M.D. Colombia
Psychiatry

Trusewych, Timothy B.

D.O. Chgo Col. Osteo. Med.
Int. Med.

Tsai, An Kon

M.D. China-Taiwan
Fam. Prac. (CH)

Tsai, Houn

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Anesthes. (CH)

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M.D. U. of Cincinnati
Int. Med.

Tuman, Kenneth J.

M.D. U. of Illinois
Anesthes.

Tummon, Ian S.

M.D. U. of Toronto
Ob. & Gyne.

Tunestam, Nils J.

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Fam. Prac. (MTSN)

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Prev. Med.

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Pediatrics

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B.S. U. of Illinois
Occup. Therapy

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M.D. Emory U.
Cv.T. Surg.

Tyszka, Thomas S.

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U

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O.R. & Surg. Nsg.

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Pediatrics (CH)
- Weiss, Herman**
M.D. Chicago Medical Sch.
Phys. Med. & Rhb.
- Weiss, Mark S.**
M.D. New York Med. Col.
Pediatrics
- Weitzner, John S.**
M.D. Chicago Medical Sch.
Ob. & Gyne. CDH
- Weller, Bradford B.**
M.S. U. of Illinois
O.R. & Surg. Nsg.
- Weller, Herschel**
M.D. U. of Illinois
Int. Med. (MTSN)
- Wellman, William L.**
M.S. U. of Michigan
Hlth. Syst. Mgt.
- Welsh, Brady T.**
M.D. Northwestern U.
Fam. Prac.
- Welsh, Thomas J.**
D.V.M. Oklahoma State U.
Ph.D. U. of Illinois
Immun./Micro.
- Wenzel, David R.**
M.D. Jefferson Med. Col. of Phila.
Anesthes.
- Werhane, Mary Jo**
M.S. U. of Illinois
Med. Nsg.
- West, James Ward**
M.D. Loyola U. of Chicago
Psychiatry
- Westerman, Maxwell P.**
M.D. U. of Louisville
Int. Med. (MTSN)
- Westheimer, Ruth**
M.D. Rush U.
Psychiatry
- Weyrens, Francis P.**
M.D. St. Louis U.
Ob. & Gyne. GBUR
- Whisler, Kenneth E.**
Ph.D. U. of Wisconsin
Biochemistry, Medical Technology
- Whisler, Walter**
M.D. U. of Illinois
Ph.D. U. of Illinois
Neuro. Surg., Neuro. Sci.,
Biochemistry
- Whitaker, Ronald H.**
M.S. Ohio State U.
Hlth. Syst. Mgt.
- White, Donald R.**
M.D. Baylor Col. of Med.
Pediatrics CDH
- White, Paula**
M.S. Rush U.
Med. Nsg.
- Whitmore, Elizabeth**
M.S. Rush U.
O.R. & Surg. Nsg.
- Wichter, Melvin**
M.D. New York Med. Col.
Neuro. Sci. (CH)
- Wickham, Rita**
M.S. Northern Illinois U.
Med. Nsg.
- Wickramasinghe, M.**
M.B.B.S. Ceylon
Pediatrics (MTSN)
- Wides, Kathleen E.**
M.D. Loyola U. of Chicago
Int. Med.
- Wigder, Herbert N.**
M.D. U. of Wisconsin
Fam. Prac. (CH)
- Wilbanks, George D.**
M.D. Duke U.
Ob. & Gyne.
- Wilcox, Kenneth**
Int. Med. (CH)
- Wildblood, Ann R.**
M.S. Va. Commonwealth U.
Comm. Hlth. Nsg.
- Wiley, Elizabeth**
M.D. Johns Hopkins U.
Pathology
- Wilhelm, Emanuel C.**
M.D. Loyola U. of Chicago
Ob. & Gyne. (CH)
- Wilkinson, Steven B.**
M.D. U. of Missouri
Neuro. Surg.
- Willander, Duane A.**
M.D. Northwestern U.
Ortho. Surg. GBUR
- Williams, Barbara L.**
Ph.D. Rice U.
M.D. Indiana U./Purdue U.
Int. Med.
- Williams, E. Jane**
Ph.D. Ohio State U.
Prev. Med., Occup. Therapy
- Williams, Jack**
M.D.
Int. Med. (GRNT)
- Williams, James M.**
Ph.D. Indiana U./Purdue U.
Anatomy
- Williams, James W.**
M.D. U. of Tennessee
Gen. Surg.
- Williamson, Patricia**
M.S. Rush U.
O.R. & Surg. Nsg.
- Williamson, Wayne C.**
M.D. U. of Cincinnati
Int. Med.
- Wilner, Laura J.**
M.D. Chicago Medical Sch.
Pediatrics
- Wilson, Diana E.**
M.D. U. of Texas
Neuro. Surg.
- Wilson, Robert S.**
Ph.D. Wayne State U.
Psy./Soc. Sc.
- Wing, Herman**
M.D. U. of Texas
L.L.B. U. of Texas
Int. Med.
- Winkels, Kathy**
M.A. Western Michigan U.
Commun. Dis.
- Winston, Leonard**
D.P.M. II. Col. Podiatric Med.
Ortho. Surg.
- Winter, Paul L.**
M.D. Northwestern U.
Int. Med.

Winterfield Jr., Roland

M.D. Northwestern U.
Int. Med. (CH)

Wirtshafter, Robert

M.D. U. of Chicago
Pediatrics (CH)

Wisby, Marian

M.S.N. Rush U.
Geront. Nsg.

Witkowski, Leon J.

M.D. Northwestern U.
Gen. Surg.

Witkowski, Robert

M.D. Rush U.
Gen. Surg.

Witt, Thomas R.

M.D. Northwestern U.
Gen. Surg.

Wittert, Donna

M.S. U. of Illinois
O.R. & Surg. Nsg.

Wittman, Randall S.

M.D. Loyola U. of Chicago
Ob. & Gyne.

Wojcik, Edward

M.D. Loyola U. of Chicago
Ortho. Surg. (LMGH)

Wolf, Marion E.

M.D. Chile
Psychiatry

Wolf, Mark R.

D.D.S. U. of Illinois
Oto. & Bronc.

Wolfe, Caroline M.

M.D. U. of Chicago
Int. Med.

Wolfe, Charles K.

M.D. U. of Pennsylvania
Int. Med.

Wolff, John R.

M.D. Northwestern U.
Ob. & Gyne. Psychiatry

Wolff, Marcy E.

M.D. U. of California
Fam. Prac.

Wolin, Preston M.

M.D. U. of Illinois
Ortho. Surg. (CH)

Wolinsky, Steven

M.A. Northern Illinois U.
Rel. Hlth. Prg.

Wolter, Janet

M.D. U. of Illinois
Int. Med.

Wong, Alfonso

M.D. Philippine Is.
Anesthes. (CH)

Wong, Cynthia

M.D. U. of Chicago
Anesthes.

Wong, Fuk Chun Alan

M.D. Rush U.
Pediatrics

Wong, Milton K.

M.D. U. of San Francisco
Pediatrics

Wong, Paul W.

M.D. Hong Kong
Pediatrics Int. Med.

Wong, Sansan

M.D. Chicago Medical Sch.
Int. Med.

Wood, Joseph P.

M.D. U. of Illinois
Fam. Prac. (CH)

Wood, Mary Katherine

M.D. Southern Illinois U.
Ob. & Gyne.

Wood, Nancy B.

Ph.D. Rutgers U.
Ob. & Gyne.

Wool, Norman L.

M.D. Chicago Medical Sch.
Gen. Surg.

Woronowicz, Andrew

M.D. Poland
Anesthes.

Wright, Donovan G.

M.D. U. of Minnesota
Psychiatry

Wright, Robert B.

M.D. U. of Illinois
Neuro. Sci.

Wu, Chang De

M.D. China
Ortho. Surg.

Wurtz, Rebecca

M.D. Harvard U.
Int. Med.

Wyhinny, George

M.D. U. of Illinois
Ophthalmology

Wyhinny, Patricia

M.D. Rush Medical Col.
Dermatology

Y

Yadava, Ved Prakash

M.D. India
Int. Med. (GRNT)

Yang, Sen-Lian

M.D.
Ob. & Gyne.

Yaremko, Lisa M.

M.D. Rush Medical Col.
Pathology

Yasoff, William A.

M.D. Northwestern U.
Int. Med.

Yballe, Sonia B.

M.D. Philippine Is.
Psychiatry (MTSN)

Yeandel, Lauren

M.S. U. of Michigan
Med. Nsg.

Yellen, Harry J.

M.D. Loyola U. of Chicago
Int. Med. (MTSN)

Yellen, Steven F.

M.D. Chicago Medical Sch.
Int. Med. (MTSN)

Ying, David P.

M.D. U. of Pennsylvania
Di. Rad. & Nuc. Med. (CH)

Yisak, Solomon

M.D. Italy
Int. Med.

Yokley, Sharon

M.D. U. of Illinois
Int. Med.

Yokoo, Teiriki

M.D. Rush Medical Col.
Phys. Med. & Rhb.

Yordan, Edgardo

M.D. U. of Maryland
Ob. & Gyne.

Yoshizawa, Ellen H.

B.S. Rush U.
Medical Technology

Yosko, Kathleen

M.N. U. of Pittsburgh
Geront. Nsg.

Young, Carolyn V.

M.A. Northwestern U.
Oto. & Bronc., Commun. Dis.

Young, Deatra

M.D. U. of Illinois
Fam. Prac. (CH)

Young, J. Norman

M.D. Northwestern U.
Gen. Surg. (LMGH)

Young, Michael

Ph.D. Adelphi U.
Psy./Soc. Sc. Psychiatry

Younger, Susan C.

M.D. U. of Mississippi
Psychiatry

Yrapsis, Nicholas

M.D. Greece
Ob. & Gyne. (CH)

Yuk, Antonio C.

M.D. U. of Pennsylvania
Neuro. Surg.

Z

Zadylak, Robert G.

M.D. Loyola U. of Chicago
Psychiatry

Zahitz, Merrill

M.D.
Int. Med. (MTSN)

Zajecka, John M.

M.D. Loyola U. of Chicago
Psychiatry

Zakko, Hazim Y.

M.B.,B.Ch. Iraq
Psychiatry

Zallik, Ned I.

M.D. Chicago Medical Sch
Int. Med

Zaneveld, Lourens

D.V.M. U. of Georgia
Ph.D. U. of Georgia
Ob. & Gyne., Biochemistry

Zaremski, Miles J.

J.D. Case Western Reserve U
Hlth. Syst. Mgt.

Zaret, Phillip H.

M.D. U. of Illinois
Gen. Surg MT

Zarrabi, Jalil

M.D. Iran
Pediatrics

Zeitz, Howard J.

M.D. U. of Illinois
Immun./Micro., Int. Med (GRNT)

Zelinger, Allan B.

M.D. Rush U
Int. Med. (CH)

Zelinger, Bernard B.

M.D. Germany
Ob. & Gyne. (CH)

Zeller, Janice M.

Ph.D. U. of Illinois
Med. Nsg., Immun./Micro

Zervopoulos, Evangelia

M.D. Greece
Pediatrics (SWED)

Ziarko Jr., Mitchell

M.D. U. of Illinois
Int. Med

Zielinski, Gail M.

M.S. Rush U.
Med. Nsg.

Zimmerman, Roger P.

Ph.D. Yale U.
Neuro. Sci., Physiology

Zitek, Russell

M.D. U. of Illinois
Fam. Prac. (LMGH)

Zitter, Robert E.

Ph.D. West Virginia U
Fam. Prac. Psy./Soc. Sc. (CH)

Zlomke, Michael

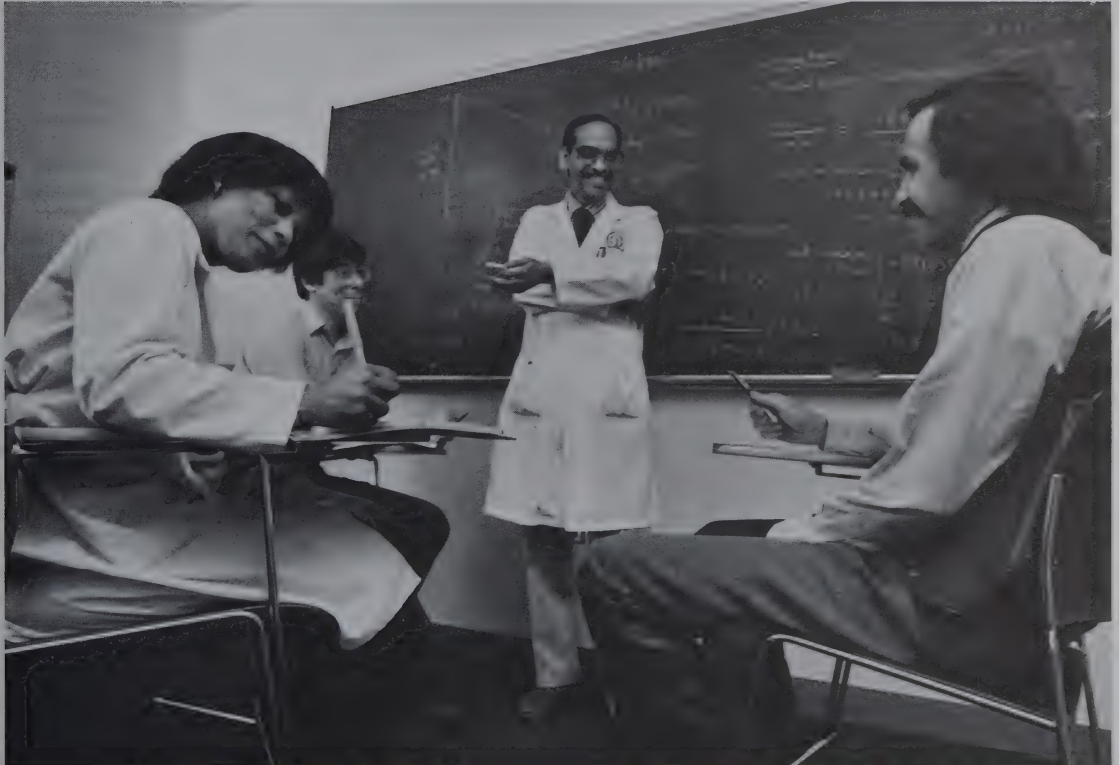
M.D. U. of Nebraska
Gen. Surg.

Zoldan, Jack

M.D. U. of Illinois
Int. Med.

Zuckerman, Victor

D.O. Phila. Col. Osteo. Med.
Pediatrics



ENDOWED CHAIRS

**Endowed Chairs at
Rush-Presbyterian-St. Luke's
Medical Center**

Endowment provides the margin for excellence at Rush University as generous and far-sighted giving helps build leadership among the faculties. Commitments for endowed chairs provide the donor with the satisfaction of enabling Rush faculty to advance education and research in the conquest of disease, and make it possible for Rush University to continue to attract scientists and educators of the highest quality. There are now 35 endowed chairs at the Medical Center, more than half of them fully funded.

The following chairs are currently occupied:

**Jean Schweppe Armour
Chair of Neurology**

This, the first endowed chair at a private hospital in this country, was established in 1963 as memorial to Jean Schweppe Armour by A. Watson Armour III, other members of the Armour family, and by her friends as a tribute to her leadership as a volunteer for the Medical Center and as a member of its Woman's Board.

Holder: Maynard M. Cohen, M.D., Ph.D.
The Jean Schweppe Armour
Professor of Neurology

**John W. and Helen H. Watzek
Chair of Biochemistry**

Established in 1965 by John W. Watzek, Jr., an industrialist, to honor the memory of his parents. The decision grew out of a relationship with the Medical Center and with his physician, the late Richard B. Capps, M.D.

Holder: Klaus E. Kuettner, Ph.D.
The John W. and
Helen H. Watzek
Professor of Biochemistry
Professor of Orthopedic
Surgery
Chairman of the Department of
Biochemistry

**Josephine Dyrenforth
Chair of Gastroenterology**

Established in 1968 by a bequest of Mrs. Josephine Dyrenforth in appreciation of the care given her husband, Arthur, a well known Chicago attorney.

Holder: Seymour M. Sabesin, M.D.
The Josephine Dyrenforth
Professor of Gastroenterology

**Woman's Board
Chair of Pediatrics**

Established in 1968 by the Woman's Board of Rush-Presbyterian-St. Luke's Medical Center as the first endowed chair of pediatrics at any hospital in the nation and the first major endowment by the Woman's Board.

Holder: Samuel P. Gotoff, M.D.
The Woman's Board Professor
of Pediatrics
Chairman of the Department of
Pediatrics.

**Elodia Kehm
Chair of Hematology**

Established in 1969 by a bequest honoring Elodia Kehm, widow of the owner of Kehm Construction, who died of cancer in 1932.

Holder: William H. Knospe, M.D.
The Elodia Kehm Professor
of Hematology

**Willard L. Wood, M.D.
Chair of Rheumatology**

Established in 1969 through a bequest of the late Charles S. Pillsbury, his family and other grateful patients of Willard L. Wood, M.D., who was graduated from Rush Medical College and was a physician and a Rush University faculty member for more than 55 years.

Holder: Thomas J. Schnitzer, M.D.,
Ph.D.
The Willard L. Wood, M.D.,
Professor of Rheumatology

John M. Simpson

Chair of Obstetrics and Gynecology

Established in 1970 when John M. Simpson, Trustee of Rush-Presbyterian-St. Luke's Medical Center, permitted his name to be identified with this endowment.

Holder: George D. Wilbanks, Jr., M.D.

The John M. Simpson Professor
of Obstetrics and Gynecology
Chairman of the Department of
Obstetrics and Gynecology

Bishop Anderson

Chair of Religion and Medicine

Established in 1970 through the philanthropy of Mrs. Laurance Armour, Sr., and the leadership of Bishop Charles P. Anderson, Bishop of the Episcopal Diocese of Chicago from 1900-1930, as an important recognition of the heritage and commitment of Rush-Presbyterian-St. Luke's Medical Center.

Holder: The Reverend Christian A.
Hovde, Ph.D., D.D.

The Bishop Anderson
Professor of Religion and
Medicine

Chairman of the Department of
Religion and Health

Ralph C. Brown, M.D.,

Chair of Internal Medicine

Established in 1970 by the family and friends of Ralph C. Brown, M.D., graduate of Rush Medical College who served as professor of medicine and who was a medical staff member of Presbyterian-St. Luke's Hospital until his death in 1954.

Holder: Roger C. Bone, M.D.,

The Ralph C. Brown Professor of
Internal Medicine
Chairman of the Department of
Internal Medicine

Thomas J. Coogan, Sr., M.D.,

Chair of Immunology

Established in 1971 in tribute to the late Thomas J. Coogan, M.D., and in memory of Benjamin F. Lindheimer by his daughter, Marjorie Lindheimer Everett, who recognized Dr. Coogan's outstanding service to the medical profession and encouraged the great progress in the discipline of immunology at Rush.

Holder: Henry Gewurz, M.D.

The Thomas J. Coogan, Sr.,
M.D., Professor of
Immunology

Chairman of the Department of
Immunology/Microbiology
Professor of Internal Medicine
Professor of Pediatrics

James Lowenstine

Chair of Internal Medicine

Created in 1971 by the Lowenstine Foundation, the family of Mr. Lowenstine and Mr. Lowenstine himself, to promote the philosophy of patient-centered care particularly the clinical training of the family doctor.

Holder: Stuart Levin, M.D.

The James Lowenstine Professor
of Internal Medicine

Stanley G. Harris, Sr.,

Chair of Psychiatry

Established in 1972 as a lasting memorial to the late Stanley G. Harris, Sr., who provided Rush-Presbyterian-St. Luke's with leadership and philanthropy for many years.

Holder: Jan Fawcett, M.D.

The Stanley G. Harris, Sr.,
Professor of Psychiatry
Chairman of the Department
of Psychiatry

**Harriet Blair Borland
Chair of Pathology**

Established in 1972 by Chauncey B. Borland, a Trustee of Rush-Presbyterian-St. Luke's Medical Center for many years, in memory of his mother who shared his interest in clinical pathology and supported the same interests during her lifetime.

Holder: Ronald S. Weinstein, M.D.
The Harriet Blair Borland
Professor of Pathology
Chairman of the Department
of Pathology

**Stanton A. Friedberg, M.D.,
Chair of Otolaryngology and
Bronchoesophagology**

Established in 1973 by the family and friends of Stanton A. Friedberg, M.D., a preeminent physician and teacher of Rush Medical College and president of the medical staff from 1964 to 1966.

Holder: David D. Caldarelli, M.D.
The Stanton A. Friedberg, M.D.,
Professor of Otolaryngology
and Bronchoesophagology
Chairman of the Department
of Otolaryngology and
Bronchoesophagology

**Jack Fraser Smith
Chair of Surgery**

Established in 1974 by Bertha Spaeti Smith to recognize and honor, in memory of her husband, outstanding physicians and surgeons in the Department of General Surgery.

Holder: James W. Williams, M.D.
The Jack Fraser Smith
Professor of Surgery
Director of the Section of
Transplantation, Department
of General Surgery

**Otho S. A. Sprague
Chair of Pathology**

Established in 1975 to recognize the Otho S. A. Sprague Memorial Institute which was created through the will of Otho S. A. Sprague, civic leader in Chicago at the turn of the century, and which, since 1938, has supported research at Rush, especially in the Departments of Biochemistry, Immunology/Microbiology, and Pathology.

Holder: George M. Hass, M.D.
The Otho S. A. Sprague
Professor of Pathology,
Emeritus

**Francis N. and Catherine O. Bard
Chair of Physiology**

Established in 1975 by bequest of Francis N. Bard, who took an active interest in the Medical Center, an interest which his family continues.

Holder: Robert S. Eisenberg, Ph.D.
The Francis N. and
Catherine O. Bard Professor
of Physiology
Chairman of the Department
of Physiology

**William A. Hark, M.D.-Susan G. Swift
Chair of Orthopedic Surgery**

Established in 1977, the Hark-Swift Chair brings together the names of a physician and patient as an abiding reminder of that special relationship. It was funded by family and friends of the late William A. Hark, M.D., the estate of Susanne G. Swift--a former patient of Dr. Hark--and members of the Department of Orthopedic Surgery.

Holder: Jorge O. Galante, M.D., D.M.Sc.
The Hark-Swift Professor
of Orthopedic Surgery
Chairman of the Department
of Orthopedics

**Robert C. Borwell
Chair of Neurology**

Established in 1978 by Robert C. Borwell, Trustee of Rush-Presbyterian-St. Luke's Medical Center, to set an example for others to follow for the endowment needs of the new Rush University and to support the research and treatment of multiple sclerosis and related diseases.

Holder: Floyd A. Davis, M.D.
The Robert C. Borwell
Professor of Neurology
Director of the Multiple
Sclerosis Center

**Samuel G. Taylor III, M.D.,
Chair of Oncology**

Established in 1978 to honor Samuel G. Taylor III, M.D., professor of internal medicine, emeritus, whose career began with a Rush degree 50 years ago, by his friends, patients and colleagues. Dr. Taylor remains actively involved in the Section of Medical Oncology which he founded.

Holder: Jules E. Harris, M.D.
The Samuel G. Taylor III, M.D.,
Professor of Oncology
Director of the Section
of Medical Oncology

**John L. and Helen Kellogg
Dean of the College of Nursing**

Established in 1978 by the John L. and Helen Kellogg Foundation in the College of Nursing as part of a munificent \$4.5 million gift which also named the Kellogg Pavilion and created the John L. and Helen Kellogg National Center for Excellence in Nursing at the Medical Center as a memorial to Mr. and Mrs. Kellogg.

Holder: Kathleen G. Andreoli, D.S.N.
The John L. and Helen Kellogg
Dean of the College
of Nursing
Vice President for Nursing
Affairs

**Helen Shedd Keith
Chair of General Surgery**

Established in 1980 in tribute to Helen Shedd Keith, first a member of St. Luke's Hospital Woman's Board and later of the combined boards of both Presbyterian and St. Luke's Hospitals, a founder of the Anchor Cross Society and a generous donor to Rush-Presbyterian-St. Luke's Medical Center. The chair was endowed by her daughter and son-in-law, Mary and John Bent. Bent is a Life Trustee of the Medical Center.

Holder: Steven G. Economou, M.D.
The Helen Shedd Keith
Professor of General Surgery
Chairman of the Department
of General Surgery

**Clark Wylie Finnerud, M.D.,
Chair of Dermatology**

Established in 1981 by Mrs. Clark W. Finnerud in honor of her late husband, distinguished alumnus and professor of Rush Medical College and towering figure in the field of American dermatology.

Holder: Frederick D. Malkinson, M.D.,
D.M.D.
The Clark Wylie Finnerud,
M.D., Professor of
Dermatology
Chairman of the Department
of Dermatology

**William Gottschalk, M.D.,
Chair of Anesthesiology**

Established in 1984 by family, friends, patients and colleagues to honor the late William Gottschalk, M.D., internationally recognized authority in anesthesiology and gynecology, and associate chairman of the Department of Anesthesiology from 1975 to 1984.

Holder: Anthony D. Ivankovich, M.D.,
The William Gottschalk
Professor of Anesthesiology
Chairman of the Department
of Anesthesiology

**The Coleman/Fannie May Candies
Foundation Chair**

Established in 1985 through the magnificent commitment of \$3 million from the Coleman/Fannie May Candies Foundation, Inc., this endowment includes the directorship of The Thomas Hazen Thorne Bone Marrow Transplant Center, as well as endowment for research efforts and for expansion of the current facilities.

Holder: Herbert Kaizer, M.D., Ph.D.
The Coleman/Fannie May
Candies Foundation Professor

In addition, the following chairs are either partially or fully endowed but are currently unoccupied:

**Richard B. Capps, M.D.,
Chair of Hepatology**

Established in 1968 by friends and patients in recognition of the contributions of Richard B. Capps, M.D., to medicine, particularly his pioneering research and study of hepatitis.

**Chair of Cardiovascular-Thoracic
Surgery**

Established under the leadership of John Bent, Trustee, in 1970.

**Harry Boysen, M.D.,
Chair of Obstetrics and Gynecology**

Established in 1970 by gifts from the Woman's Board, the Trustees and grateful patients of Harry Boysen, M.D.

**J. Bailey Carter, M.D.,
Chair of Cardiology**

Established in 1972 by his widow, Ruth, this chair honors J. Bailey Carter, M.D., a well-known professor of cardiology on the Rush Medical College faculty from 1928 to 1938.

**Max S. Sadove, M.D.,
Chair of Anesthesiology**

Established in 1973 primarily by gifts from members of the Department of Anesthesiology and named in 1984 to honor Max S. Sadove, M.D., chairman of the Department of Anesthesiology from 1971 to 1979, whose leadership brought the department to international stature.

**James A. Campbell, M.D.,
Distinguished Service Chair**

Established in 1981 by a group of former chairmen of the Trustees and special friends of the Medical Center to permanently recognize the vision, imagination, and personal dedication of its president.

**Woman's Board
Chair of Child Psychiatry**

Established in 1985 by the Woman's Board of Rush-Presbyterian-St. Luke's Medical Center.

Muehrcke-Kark Chair of Nephrology

To honor Robert M. Kark, M.D., who as professor of internal medicine at Rush Medical College is world renowned for his pioneer work in renal biopsies. Dr. Kark has trained countless physicians and investigators, among them Robert C. Muehrcke, M.D., professor, internal medicine, Rush Medical College, and director of the Kidney Center and director of medical education at West Suburban Hospital Medical Center, Oak Park, Illinois. Dr. Muehrcke initiated the establishment of this chair.

The Ciba-Geigy Chair of Biochemistry

Established in 1987 by CIBA-GEIGY, the American arm of the multi-national chemical and pharmaceutical firm headquartered in Switzerland, with hopes of conquering arthritis as one of mankind's most widespread afflictions and as an example of the productive relationships between industry and academic medicine.

**Claude N. Lambert, M.D.-Helen S.
Thompson Chair in Orthopedic Surgery**

Established in 1987 through the generous bequest of Helen S. Thomson, a patient, long-time friend and neighbor of the late Claude N. Lambert, M.D., who served Rush-Presbyterian-St. Luke's for 40 years and who was a leader in setting the Department of Orthopedic Surgery on the course which has brought it world-recognized stature.

The following also represents a major endowment:

**The William Noble Lane
Medical Research Organization**

This, the first Medical Research Organization in the Midwest and the second in the nation, honors the memory of William Noble Lane, distinguished civic leader and entrepreneur. It was established in 1980 by the William Noble Lane Foundation to engage in medical research in conjunction with a hospital.

Principal

Investigator: Eugene J-M. A. Thonar, Ph.D.
Associate Professor of
Biochemistry

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Edward F. Blettner
William F. Borland
Robert C. Borwell, Sr.
R. Gordon Brown, M.D.
Mrs. George S. Chappell, Jr.
William M. Collins, Jr.
David W. Dangler
Mes. Herbert C. DeYoung
Robert C. Gunness
Stanley G. Harris, Jr.
Augustin S. Hart, Jr.
Robert J. Hasterlik, M.D.
Mrs. William G. Karnes
Clayton Kirkpatrick
John H. Krehbiel, Sr.
Brooks McCormick
Anthony F. Michel
The Rt. Rev. James W. Montgomery
Kenneth F. Montgomery
George V. Myers
The Rt. Rev. Quintin E. Primo, Jr.
Richard W. Simmons
Justin A. Stanley
E. Norman Staub
T. M. Thompson
Mrs. Calvin D. Trowbridge
Waltman Walters, M.D.
B. Kenneth West
Edward Foss Wilson
Arthur M. Wood
George B. Young

Management

Medical Center

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President

Donald R. Oder
Senior Vice President and Treasurer

Henry P. Russe, M.D.
Vice President, Medical Affairs and
Dean, Rush Medical College

Kathleen G. Andreoli, D.S.N.
Vice President, Nursing Affairs and
Dean, College of Nursing

John E. Trufant, Ed.D.
Vice President, Academic Resources
Dean, The Graduate College and
Dean, College of Health Sciences

Wayne M. Lerner
Vice President, Administrative Affairs

Kevin J. Necas
Vice President-Finance

William Gold, Ph.D.
Vice President, Prepaid Health Programs,
and President, ANCHOR Corporation

Sheldon Garber
Vice President, Philanthropy & Commun-
ication and Secretary

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University Marshal

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Associate Dean, Student Services

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Director, Student Affairs

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Director, Student Financial Aid

Paola Di Domenico
Manager, Financial Affairs

Beverly B. Huckman
Equal Opportunity Coordinator
for Academic Affairs

Marilyn A. Johnson, Ph.D.
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Phyllis J. Peterson, M.Ed.
Director, College Admissions Services, and
Director, Affiliated College Programs

Joe B. Swihart, M.S.Ed.
Registrar

Rush Medical College

Henry P. Russe, M.D.
Dean, Rush Medical College

L. Penfield Faber, M.D.
Associate Dean, Surgical Sciences and
Services, and Associate Vice President,
Medical Affairs

Walter Fried, M.D.
Associate Dean, Medical Sciences and
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Medical Affairs

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Associate Dean, Medical Student Programs

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Associate Dean, Educational Development

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Assistant Dean, Preclinical Curriculum

Edward J. Eckenfels
Assistant Dean, Academic Counseling

Tina Field, M.S.
Assistant Administrator, Medical Affairs and
Assistant to the Dean, Rush Medical College

Teresa A. Cappetta
Director, Office of Admissions

Jan L. Schmidt
Administrative Director, Office of Medical
Student Programs

College of Nursing

Kathleen G. Andreoli, D.S.N.
Dean, College of Nursing

Janet S. Moore, Ph.D.
Associate Dean and Associate Vice President

Judith Jezek, Ed.D.
Assistant Dean, Academic Programs

Julia Quiring, Ph.D.
Director, Graduate Program

Jane Ulsafer-VanLanen, M.S.
Director, Continuing Education

College of Health Sciences

John E. Trufant, Ed.D.
Dean, College of Health Sciences

The Graduate College

John E. Trufant, Ed.D.
Dean, The Graduate College

Rush University Affiliations

Affiliated Colleges

Beloit College, Beloit, Wisconsin
Carleton College, Northfield, Minnesota
Colorado College, Colorado Springs,
Colorado
Cornell College, Mount Vernon, Iowa
Fisk University, Nashville, Tennessee
Grinnell College, Grinnell, Iowa
Illinois Benedictine College, Lisle, Illinois
Illinois Institute of Technology, Chicago,
Illinois
Knox College, Galesburg, Illinois
Lake Forest College, Lake Forest, Illinois
Lawrence University, Appleton, Wisconsin
Macalester College, St. Paul, Minnesota
Monmouth College, Monmouth, Illinois
North Central College, Naperville, Illinois
Ripon College, Ripon, Wisconsin
Wheaton College, Wheaton, Illinois

Clinical Network

Bethany Hospital, Chicago, Illinois
Central DuPage Hospital, Winfield, Illinois
Christ Hospital and Medical Center, Oak
Lawn, Illinois
Copley Memorial Hospital, Inc., Aurora,
Illinois
Elmhurst Memorial Hospital, Elmhurst, Illinois
Galesburg Cottage Hospital, Galesburg,
Illinois
Grant Hospital of Chicago, Chicago, Illinois
LaGrange Memorial Hospital, LaGrange,
Illinois
LaPorte Hospital, LaPorte, Indiana
MacNeal Hospital, Berwyn, Illinois
Marianjoy Rehabilitation Center, Wheaton,
Illinois
Mile Square Health Center, Inc., Chicago,
Illinois
Mount Sinai Hospital Medical Center,
Chicago, Illinois
Rush North Shore Medical Center, Skokie,
Illinois
St. Mary's Hospital, Streator, Illinois
Schwab Rehabilitation Center, Chicago,
Illinois
Swedish Covenant Hospital, Chicago, Illinois
West Suburban Hospital Medical Center, Oak
Park, Illinois

Committees

Rush Medical College

Committees exist within the structure of Rush Medical College to assure the appropriate involvement of faculty and students in the various activities of the college. Except for the Rush Medical College Student Council, each committee includes representation from both faculty and students.

Faculty Council. The Faculty Council is the senior representative body within Rush Medical College. The membership includes nine professors, three associate professors, three assistant professors, three instructors or assistants, and one student from each class, each chosen by vote of the corresponding constituency.

Committee on Committees. The Committee on Committees has as its primary responsibility the nomination of individuals to serve on the various standing committees of the medical college. Sitting as the Committee on Dialogue, the committee is also responsible for dealing with grievances presented by members of the Rush Medical College community.

Student Council. The Student Council is the representative government for students of Rush Medical College and consists of six representatives from each of the four classes within the medical school. The council provides a mechanism to facilitate the exchange of information on matters affecting the student body.

The standing committees of Rush Medical College include:

Committee on Academic Freedom. This committee concerns itself with questions of academic freedom. It works closely with the Committee on Dialogue and the Faculty Council in resolving grievances involving questions of academic freedom.

Committee on Admissions. Members of this committee are responsible for recommending to the dean students for admission to the medical college. The duties of the committee members include selecting those applicants who will be interviewed; interviewing candidates; choosing applicants who will be offered acceptances to the medical college; and reviewing criteria

applied from medical student admissions to maintain academic excellence.

Committee on Affirmative Action. The Committee on Affirmative Action serves to advise the dean and the faculty regarding policies, procedures and issues that affect the recruitment, retention and promotion of minority and women faculty and students in the college. The committee works closely with the equal opportunity coordinator for academic affairs.

Curriculum Committee. The Curriculum Committee is responsible for the design and content of the curriculum. On the basis of its own surveys and the evaluations of the Committee on Educational Appraisal, this committee evaluates the need for and, as deemed appropriate, develops recommendations for curricular modification.

Committee on Educational Appraisal. The Committee on Educational Appraisal is responsible for evaluating the courses of Rush Medical College. The committee administers, with the assistance of each course director, and analyzes course, clerkship and faculty assessments provided by students. An annual report is produced for each course within the medical college curriculum.

Committee on Educational Resources. The principal function of the Committee on Educational Resources is to evaluate the utilization, organization and effectiveness of the sections of the Center for Educational Resources as they relate to the faculty and students of the medical college.

Committee on Senior Faculty Appointments and Promotions. The function of the Committee on Senior Faculty Appointments and Promotions (COSFAP) is to review recommendations submitted by chairmen for appointments or promotions of faculty members to academic ranks of indefinite terms in Rush Medical College. Recommendations for appointments or promotions are then submitted to the Office of the Dean for further action.

Committee on Student Affairs. The Committee on Student Affairs (COSA) is concerned with noncurricular needs of medical students. Its regular responsibilities include an annual evaluation of the effectiveness and adequacy of programs and services available to students, improvement

of current programs, and initiation of new activities when their need is recognized. The committee works closely with the University Office of Student Services.

Committee on Student Evaluation and Promotion. The Committee on Student Evaluation and Promotion (COSEP) is responsible for developing policies concerning student status, evaluation, and promotion; reviewing the academic performance of medical college students; making recommendations to the Faculty Council and dean concerning promotion, graduation, and dismissal of students; and determining requirements for remedial action for students who have failed medical college courses.

Committee on Student Judiciary Review.

It is the responsibility of the Committee on Student Judiciary Review to develop and recommend to the Faculty Council policies and procedures which promote the maintenance of ethical and professional standards for Rush Medical College students and to investigate and adjudicate charges of student misconduct of a nonacademic nature including, but not limited to: violations of commonly accepted ethical standards of an academic community, such as cheating and plagiarism; falsification of student records, transcripts, financial aid forms, or applications; unlawful use or possession of controlled substances on the Medical Center campus; conviction of a crime deemed serious enough to render the student unfit to pursue his/her profession or other conduct which is inconsistent with generally accepted standards of behavior within an academic community or the medical profession. All charges of student misconduct of a nonacademic nature shall be presented to the associate dean for medical student programs by students or faculty. The committee shall submit its recommendation to the Faculty Council, which, in turn, shall make a recommendation to the dean who will then render a final, nonappealable decision on the charges.

College of Nursing

Faculty Senate. The Faculty Senate is the governing body for the faculty and operates as the Committee on Committees. The senate has nine members representing each academic rank level, as well as members from the faculty-at-large. Members of this body are elected annually and the senate

elects its own chairman. Two student representatives also serve on the senate.

The standing committees of the College of Nursing assist with the work of the college. Members of the committees are elected by the total faculty every June. The committees include:

Graduate Admissions, Progressions and Graduations. This committee is responsible for maintaining the admission and progression standards and policies for the graduate programs. There are five members on this committee plus one student representative.

Graduate Curriculum. This committee serves as the monitoring resource for the graduate curriculum. The committee reviews all new courses and/or major changes in the curriculum, establishes and monitors methodology for curriculum evaluation and provides overall consistency for curriculum development. There are five members on this committee plus one student representative.

Undergraduate Admissions and Progressions. This committee is responsible for maintaining the admission and progression standards and policies for the undergraduate program. There are six members on this committee plus one student representative.

Undergraduate Curriculum. This committee serves as the monitoring resource for the undergraduate curriculum. The committee reviews all new courses and/or major changes in the curriculum, establishes and monitors methodology for curriculum evaluation and provides overall consistency for curriculum development. There are six members on this committee plus two student representatives.

Affirmative Action. This committee is involved with the recruitment and retention of students and faculty from minority groups and data collection and research in relation to affirmative action activities and progress. There are six members on this committee including one student representative.

Educational Resource. This committee deals with the educational resource needs of the College of Nursing and provides liaison with the University Educational Resource Committee. There are seven members on this committee including two student representatives.

Faculty Appointments and Promotions Committee. This committee acts upon the appointments and promotions of faculty in accordance with the Rules of Governance. There are five members on this committee.

Faculty Development Committee. This committee is responsible for the design and implementation of programs to promote the growth and development of faculty. There are six members on this committee including a student representative.

College of Health Sciences

College Council. The senior representative governing body of the College of Health Sciences is the College Council. The College Council membership is comprised of both faculty members and students. The dean of the college serves as chairman.

Faculty members represent all departments and ranks. Students represent both undergraduate and graduate levels.

The Graduate College

The Graduate College Council. The Graduate College Council is the senior representative body for The Graduate College. The committee is made up of all division directors, three faculty-at-large representatives and two student representatives. The Graduate College Council is chaired by the dean of The Graduate College.

Some academic policies and procedures may differ in detail from one division to another; however, each division's program and regulations must be reviewed for approval by The Graduate College Council.



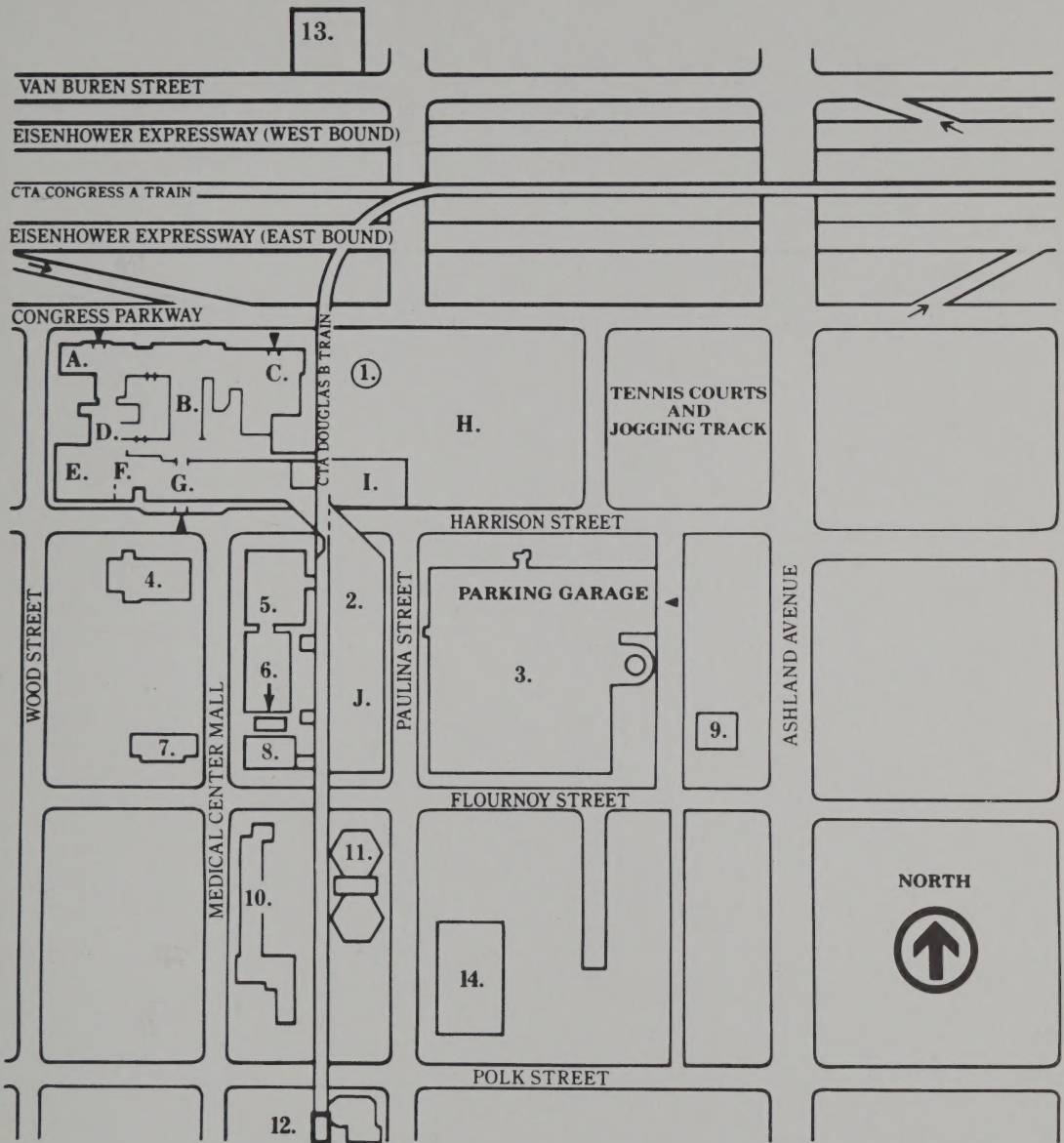
Health Services Department Building Complex Health Services Building Complex



Legend

1. Reception
2. Waiting Room
3. Examination Room
4. X-ray Room
5. Laboratory
6. Pharmacy
7. Radiology
8. Health Services Building Complex
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Rush Presbyterian-St. Luke's Medical Center Rush University Campus



1. Presbyterian-St. Luke's Hospital

- A. Jones
- B. Pavilion
- C. Kellogg Pavilion
- D. Murdock
- E. Rawson
- F. Senn
- G. Jelke SouthCenter
- H. Atrium Building
- I. Women's Board Cancer Treatment Center

2. Academic Facility

- J. Employee and Student Cafeteria

3. Parking Garage

- 4. Schweppe-Sprague Hall
- 5. Professional Building
- 6. Parcourse Fitness Cluster
- 7. Kidston Apartments
- 8. McCormick Apartments
- 9. Laurance Armour Day School
- 10. Marshal Field IV Mental Health Center
- 11. Johnston R. Bowman Health Center for the Elderly
- 12. Polk Street Station, CTA (B Line)
- 13. Van Buren Office Building
- 14. Human Resources Center for Employee Development

RUSH-PRESBYTERIAN-ST. LUKE'S
MEDICAL CENTER

150 YEARS



1837 1987
A Chicago Tradition A National Resource
